

RADIO **AMATEUR**

JANUARY 1994
Volume 62 No 1



Journal of the Wireless Institute of Australia



IN THIS ISSUE:

WICEN Seminar

More on Getting a Multiband HF Vertical to Go

Part 2 of a Bandwidth Limited LF Converter

Interference Cancelling

and lots more

KENWOOD

Savor the Thrill of the Chase with Kenwood's New TS-950SDX

Like a cheetah in pursuit of game, Kenwood's newest HF transceiver blends intense efficiency with swift, surgical precision. State of the art, pure and simple. Offering superb TX/RX performance plus exceptional signal purity, the TS-950SDX establishes a new benchmark for HF communications.

- Built-in DSP (digital signal processor)
- Dedicated Power MOS FET final section
- User-friendly design and menu system

HF TRANSCEIVER
TS-950SDX

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.
(INCORPORATED IN N.S.W.)

8 Figtree Drive, Australia Centre, Homebush, N.S.W. 2140

Phone (02) 746 1519, (02) 746 1888, Fax (02) 746 1509

Call now for further information and the name of your
nearest authorised Kenwood dealer.

Kenwood Electronics Australia Pty Ltd only warrants products
purchased from their authorised Australian dealers.



Amateur Radio is published by the Wireless Institute of Australia, ACN 004 920 745 as its Official Journal, on the last Friday of each month.

PUBLICATIONS COMMITTEE

Publisher

Bruce Thorne

Editor

Bill Rice VK3ABP

Production Editor

Bill Roper VK3BR

Senior Technical Editor

Peter Gibson VK3AZL

Technical Editors

Evan Jarman VK3ANI

Gil Sones VK3AUI

Bob Taft VK3UI

Marketing

Norm Eyres VK3ZEP

Bruce Kendall VK3WL

Contributing Editor

Ron Fisher VK3OM

ASSOCIATE EDITORS

Technical

David Brownsey VK4AFA

Don Graham VK6HK

Peter O'Connor VK4KIP

Phil Steen VK4APA

Roy Watkins VK8XV

WIA News

Roger Harrison VK2ZTB

PROOF READERS

Allan Doble VK3AMD

Jim Payne VK3AZT

Graham Thornton VK3IY

John Tutton VK3ZC

DRAFTING

Vicki Griffin VK3BNK

ADVERTISING

June Fox

Brenda Edmonds VK3KT

CIRCULATION

Chris Russell VK3ARZ

Sue Allan

All contributions and correspondence concerning the content of *Amateur Radio* should be forwarded to:

Amateur Radio

PO Box 300

Caulfield South VIC 3162

REGISTERED OFFICE

3/105 Hawthorn Road

Caulfield North VIC 3161

Telephone: (03) 528 5962

Fax: (03) 523 8191

Business Hours: 9:30 am to 3 pm weekdays

Deadlines

February 10/01/94 12/01/94

March 07/02/94 09/02/94

April 07/03/94 09/03/94

Delivery of AR: If this magazine is not received by the 15th of the month of issue, and you are a financial member of the WIA, please check with the Post Office before contacting the registered office of the WIA. ©

© Wireless Institute of Australia 1994

CONTENTS

Technical

Getting a Multiband HF Vertical to 'Go!' (Part II) 8

David 'Doc' Wescombe-Down VK4CMY/VK5HP

The Bandwidth Limiting LF Converter Simplified 11

Lloyd Butler VK5BR

Equipment Review — Timewave DSP-9 and DSP-59 Audio Digital 15

Signal Processors

Ron Fisher VK3OM and Ron Cook VK3AFW

Technical Abstracts 19

Gil Sones VK3AUI

Some Further Notes on Interference Cancelling 21

Lloyd Butler VK5BR

General

WICEN — Victoria Co-ordinator's Seminar 4

Howard Small VK3DLH

Amateur Radio Annual Index 1993 23

Editors

Operating

Awards

Canadaward 33

Stampede City Award 33

Canary Islands Diploma 33

Copenhagen Award 33

The J28 Award 33

DXCLA 33

Contests

UBA SSB/CW HF Contest 35

PACC CW/SSB DX Contest 35

Spanish RTTY Contest 35

ARRL DX Contest 36

RSGB 7 MHz CW Contest 36

Results 17th West Australian Annual 3.5 MHz Contest 36

Results 1993 World Wide ANARTS Contest 36

Results 1992 IARU World HF Championship 37

Results 1993 ARRL DX Contest 37

Results 1993 ARRL RTTY Roundup 37

Columns

Advertisers Index 56

ALARA 30

AMSAT Australia 31

Club Corner 34

Divisional Notes 43

Forward Bias 38

VK2 Notes 38

5/8 Wave — VK5 Notes 39

Editor's Comment 2

Federal QSP 2

Education Notes 51

Hamads 54

HF Predictions 52

How's DX? 39

IARUMS 45

Over To You 50

Pounding Brass 49

QSLs from the WIA Collection 45

QSP News 33, 37

Repeater Link 43

Silent Keys 43

Spotlight on SWling 51

Technical Correspondence 55

Update 54

VHF/UHF — An Expanding World 47

VK QSL Bureaux 56

WIA News 7, 10, 14, 18, 22, 32, 42

WIA — Divisional Directory 3

WIA — Federal Directory 2

Cover

Rod Taylor VK3XRW operating at WICEN checkpoint 'Bravo' during the 1992 Murray River Canoe Marathon. Checkpoint 'Bravo' was located in a State forest 20 km west of Yarrowonga.

Photo: Australian Geographic

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Federal office of the WIA:
3/105 Hawthorn Rd, Caulfield North, Vic 3161

All Mail to:

PO Box 300, Caulfield South, Vic 3162

Telephone: (03) 528 5962

Fax: (03) 523 8191

Business Hours: 9.30am to 3.00pm on weekdays

Federal Secretary
Bruce Thorne
Office Manager
Donna Reilly

COUNCIL

President	Kevin Olds	VK1OK
VK1 Federal Councillor	Rob Apathy	VK1KRA
VK2 Federal Councillor	Roger Harrison	VK2ZTB
VK3 Federal Councillor	Peter Maclellan	VK3BWD
VK4 Federal Councillor	Rodger Bingham	VK4HD
VK5 Federal Councillor	Bill Wardrop	VK5AWM
VK6 Federal Councillor	Nell Penfold	VK6NE
VK7 Federal Councillor	Jim Forsyth	VK7FJ

FEDERAL CO-ORDINATORS

AMSAT:	Graham Ratcliff	VK5AGR
Awards:	John Kelleher	VK3DP
Contest Manager:	Peter Nesbit	VK3APN
Education:	Brenda Edmonds	VK3KT
EMC:	Hans Ruckert	VK2AOU
FTAC:	John Martin	VK3KWA
Historian:	John Edmonds	VK3AFU
Honorary Legal Counsel:	George Brzostowski	VK1GB
IARU:	Kevin Olds	VK1OK
Int'l Travel Host Exch:	Ash Nallawalla	VK3CIT
Intruder Watch:	Gordon Loveday	VK4KAL
Media:	Roger Harrison	VK2ZTB
QSL Manager(VK9,VK0):	Neil Penfold	VK6NE
Standards:	Roger Harrison	VK2ZTB
Videotapes:	Bob Godfrey	VK4BOB
International Regulatory & RSG:	David Wardlaw	VK3ADW
WICEN:	Leigh Baker	VK3TP

Federal QSP

Here we are at the start of another year so let me begin by wishing you all a **Happy and Prosperous New Year** on behalf of the Federal Council and the Federal Office. I trust that the New Year brings you all that you wish for you and yours.

As we look forward towards this new year of 1994, we once again turn our minds to the international scene as this is the year for the triennial IARU Region 3 meeting, this time to be held in Singapore. It is an opportunity for the representatives of the member societies to get together to discuss matters of mutual concern and interest. Matters for discussion also include items from the IARU Administrative Council as well as from the other two Regions.

One area of amateur radio activity which has been fostered in Region 3 in recent years has been the sport of ARDF, or Amateur Radio Direction Finding. It's a little different from the radio fox hunts many of us are familiar with, being more akin to a combination of orienteering and pedestrian foxhunting.

October 1993 saw the holding of the first IARU Region 3 ARDF competition in Beijing in the People's Republic of China. The WIA was well represented by Wally Watkins VK4DO and Frank Sleep VK4CAU. Wally has submitted an article for *Amateur Radio* which should appear shortly so that we can all learn more about this new sport.

As we start this new year, let us all remember that, as radio amateurs, we can overcome the adversities that surround us if we all take the trouble to try and work together. Some things may not happen overnight and may take what, to you, seems to be an inordinate length of time to achieve. Rest assured, however, that matters are never forgotten. Like great forests, they take some time to come to fruition, but it does need us all to help.

Let us start this new year as we mean to continue, and become more active in our hobby, whether it's simply being on air more often, or helping out behind the scenes.

I, for one, hope to get on air more often and look forward to seeing you there.

Kevin Olds VK1OK
Federal President
ar

Editor's Comment

The Same Old Story?

Back in May 1990 the editorial was entitled "Why Join the WIA?" The question had been asked a few times before that over the years, usually with the same answers. Here I must admit that asking the question in these pages is mostly "preaching to the converted". We can only make our views known to potential members if you, our present members, read *Amateur Radio* and also show it to your non-member friends. Or at least tell them about it!

I was surprised to find that, in fact, many things had changed since 1990. Not so much the answers as the organisation of the WIA itself. Similarly, the organisation of our supervisory body has changed. Even the Act under which we enjoy our "hobby" is new. Incidentally, I do not like the word "hobby" for amateur radio. It's rather like equating Formula One car racing with dogdom cars in an amusement park! But what other word is there?

In 1990 I referred to some peoples' picture of the WIA management as being an entrenched minority of stodgy old-timers; and I invited those who wanted change to join their Divisional Council or the Executive and provide some "new blood".

So what has happened? Executive has ceased to exist! Half the Federal Councillors have only been

Councillors for a year or so. Most of the Divisional Councillors are also new names. The WIA has changed very considerably in only a few years. If some amateurs refused to join because "Joe Blow" was "in the chair", think again! Joe Blow has probably been superseded! That in itself doesn't guarantee improvement, but at least it demonstrates willingness to change.

Some things don't change. We now have as members only 34% of VK licensees, even less than in 1990. Total licensees are less than 18000 (about one in a thousand of Australian people). So we have as members only 0.034% of the population! Nevertheless we amateurs have access to more space in the spectrum than any other service except Defence.

The Citizens' Bands are tiny in

comparison, yet there are well over 200,000 licensed CBers. If there are to be changes here, who has the numbers? Can we justify our spectrum space? Only as a coherent organised body **representing** all VK amateurs. If all VK amateurs also helped to pay for the WIA, our subscription fees could be reduced to less than half their present \$40 — \$72 (depending on Division and grade).

Changes in the DoTC have created the Spectrum Management Agency (SMA). That word! Spectrum. It is a finite resource, to become a tradeable commodity on a national market. Who bids on behalf of the amateur service? Only the WIA. Does it have your support? Can it survive without you? Can you survive without it?

The future of amateur radio depends on YOU!

ar

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1994 Fees
VK1	ACT Division GPO Box 800 Canberra ACT 2601 Phone (06) 247 7006	President Christopher Davis Secretary Hugh Blemings Treasurer Don Hume	VK1DD VK1YYZ VK1DH 3.570 MHz LSB, 146.950 MHz FM, 438.525 MHz FM each Monday evening (except the fourth Monday) commencing at 8.00 pm.	(F) \$70.00 (G) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Fax (02) 633 1525	President Terry Rysland Secretary Roger Harrison Treasurer (Office hours Mon-Fri 11.00-14.00 Wed 1900-2100)	VK2UX VK2ZTB From VK2Wt 1.845, 3.595, 7.148*, 10.125, 24.950, 28.320, 52.120, 52.525, 144.150, 147.000, 438.525, 1261.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay via a local 2 metre repeater. Sunday 1000 and 1915. Highlights included in VK2AWX Newswatch Monday 1930 on 3.593 plus 10mx, 2mx, 70cm, 23cm. News headlines by phone (02) 552 5188. Some broadcast text can be found on the Packet network.	(F) \$69.75 (G) \$53.40 (X) \$38.75
VK3	Victorian Division 400 Victory Boulevard Ashburnton Vic 3147 Phone (03) 885 9261	President Jim Linton Secretary Barry Willson Treasurer Rob Halsey Office hours Tue & Thur 0630-1530	VK3PC VK3XV VK3KLZ 1.840MHz AM, 3.615 SSB, 7.065 SSB, 53.900 FM(R) Mt Dandenong, 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) \$72.00 (G) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President Ross Marren Secretary Lance Bickford Treasurer David Travis	VK4AMJ VK4ZAZ VK4ATR 1.625, 3.605, 7.116, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$72.00 (G) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3426	President Bob Allan Secretary Maurie Hooper Treasurer Bill Wardrop	VK5BJA VK5EA VK5AWM 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) \$70.00 (G) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 388 3888	President Cliff Bastin Secretary Bruce Hedland-Thomas Treasurer	VK6LZ VK6OO 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barrow broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015 Phone (002) 43 8435	President Andrew Dixon Secretary Ted Beard Treasurer Peter King	VK7GL VK7EB VK7ZPK 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNV), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) \$55.65 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			

Note: All times are local. All frequencies MHz.

Membership Grades
 (F) Needy (G) Pension (G) Pension (G) Pension (G) Pension
 (X) Needy (G) Student (S) Student (S) Student (S) Student (S)
 Non receipt of AR (X)

Three-year membership available to (F) (G) (X) grades at fee x 3 times.

WICEN — Victoria Co-ordinator's Seminar

Howard Small VK3DLH describes an important WICEN event*



Photo 1 (l to r) Nicholas Kanarev (Instructor at AEMI), David Tilson VK3UR, Richard Scott (SES Regional Officer) and Hal Hallenstein (State Coroner) chat during a break at the seminar.

When the Victorian WICEN Management Committee approved David Tilson's (VK3UR) proposal for another two day live-in Co-ordinator's seminar, it agreed that the priority for training this time should not be related to amateur radio. This might seem strange as we all know that WICEN volunteers simply have to use their technical skill to provide communications for other agencies in an emergency. Training, surely, should therefore revolve around the best way to provide communications? In other words it should revolve around amateur radio.

This was a common belief and it showed that the issues of emergency communication management and planning weren't being considered. All amateurs have a level of technical skill by virtue of having obtained a Certificate of Proficiency. Very few amateurs have training or experience in emergency response management. Now that WICEN is a

recognised agency under the Victorian State Disaster Response Plan (DISPLAN) there is an obligation to provide its service at a professional level. This entails provision of communications in total: the provision of equipment and trained operators at a consistent level of performance over an extended period in adverse conditions. The Co-ordinator's role is to make sure this happens and at the same time to plan for the support and administration required to ensure the well-being of the WICEN operators in the field.

Being volunteers does not take away any of the responsibilities attached to this role. Usually it makes them even more demanding as the volunteer has the duties of the professional without the luxury of full-time related employment allowing for extended preparation and training.

The seminar was to address these issues and help Co-ordinators understand and prepare for their

obligations. All Co-ordinators from WICEN Victoria, WICEN representatives from ACT, NSW, SA and Qld and a representative of the WIA were invited: a total of forty-three attended the Victoria Police Training Academy facilities at Glen Waverley (an eastern suburb of Melbourne). Cost of the seminar (some \$3,000), given the importance of the training and the voluntary participation by Co-ordinators, was to be met fully by WICEN.

The seminar started with a presentation by Acting Inspector Ken Mackey, Victoria Police. The Chief Commissioner of Police has overall responsibility for DISPLAN in Victoria and it is through Inspector Mackey that he exercises his authority. The presentation on DISPLAN structure and responsibilities was authoritative and clarified WICEN's role. It also drew attention to the legislative authority that exists to ensure emergency services can operate unhindered. Inspector Mackey gave some interesting examples of the way this can be used to support WICEN if required.

The presentation on DISPLAN . . . clarified WICEN's role.

Those who believed that proper counselling after an incident was a "Yuppie" activity not meant for real men found the presentation by Simon Brown-Greaves to be an eye-opener. Simon, a consulting psychologist, had worked with the Victoria Police for many years and now provides a consulting service to a range of organisations including banks. His stories of post incident stress involving undercover police, the Hoddle and Queen Streets shootings and armed hold-up victims brought a sense of reality to the issues. When the results of providing counselling to hardened police showed return to duty rates of virtually 100% compared to about 45% for those not receiving counselling it was hard to argue against the benefits and requirement for this work. The Ash Wednesday experience of some attending the seminar made it clear that WICEN



Photo 2 One of the syndicates hard at work during the exercise. (l to r) Simon Griffith VK3ZNT, Richard Hoskin VK3JFK, Ed Crane VK3KUC, Graham Jackson VK3GBJ, Gordon Cornelli VK3FGC and John Pile VK3ZPO.

operators will be exposed to distressing and difficult situations. Post incident counselling will certainly help and the methodologies suggested by Simon will be employed by WICEN Co-ordinators in future.

Mr Nicholas Kanarev, from the Australian Emergency Management Institute, who lectures on the techniques for decision making in a crisis, was a lively speaker. Within minutes he had everyone feeling the

pressures of crisis decision making and his presentation brought out valuable lessons on the need for careful assessment of objectives. Stripping out the irrelevant or less important issues helped Co-ordinators find the key events when the pressure was on and taught them the value of calm, controlled response during all phases of an incident but particularly during the time immediately following a call out.

It is highly likely that an incident requiring WICEN assistance will also involve loss of life. Mr Hal Hallenstein, the Victoria State Coroner, discussed the legal impact this could have on responding agencies and stressed that the area must be treated as a crime scene. When seen in light of his explanation about the history and role of the Coroner it again brought home issues of direct relevance to WICEN. Most of those present hoped that Mr Hallenstein did not talk too widely of the original role of the "Crown". The rewards available from a body tax paid by the community seemed too tempting for our governments to resist

Our catalogue is free!

all you have to do is ask for one and you will have
Australia's only amateur radio products catalogue.

ME
TEN-TEC
ICOM
KENWOOD

For the largest range of amateur radio products in Australia you can't afford to miss it! Just mail the coupon for your copy.

Please send a copy of the DAYCOM Summer 1994 Communications products catalogue to:

Name: Callsign:

Address:

.....

..... Postcode:

DAYCOM

37A Fenton Street, Huntingdale 3166
Bankcard, MasterCard **Phone (03) 543-6444**
& Visa all welcome **FAX (03) 543-6386**

COMMUNICATIONS Pty. Ltd. Copyright © 1993 Daycom Communications Pty. Ltd. All rights reserved. Prices do not include freight or insurance and are subject to change without notice. ACN 061819949



Photo 3 A syndicate, comprising (l to r) Brett Wilkinson VK2XMU, David Harris VK3DVB, Maggie Iaquinto VK3CFI, Ian Marsh VK3PLL, Colin Lelean VK3CWL and Bill Mahy VK3DIF tackle yet another exercise challenge.

(It seems that, like most taxes, some sought to avoid this one. As death was inevitable, the best avoidance scheme was to move the body during the dead of night to another town which would then have to pay the tax! Hence the King appointed a Crowner to investigate each death and determine which community was responsible for the tax.).

Leigh Baker VK3TP, Federal WICEN Co-ordinator, presented the new (second) edition of the WICEN Regional Co-ordinator's Manual. In doing so he highlighted the importance of the Co-ordinator's role and the strategic significance WICEN has for amateur radio generally and the WIA in particular.

Woven between these presentations was a continuing exercise. It aimed to reinforce the issues developed by our guest speakers and provide an opportunity for Co-ordinators to share their knowledge and experience.

The first task of the five syndicates was to respond to a call-out late on Saturday night in which an aircraft had crashed near Healesville (some 70 km East of Melbourne). This area was selected for the exercise as it is poorly serviced by agency communications systems and presents considerable challenges in establishing reliable links (as was well known to the organisers of the

WICEN support for the recent Healesville Rally Stages). The crash, a 747 Jumbo jet, had disrupted police and telephone communications in the area. Forty-five minutes was allowed to develop the initial response plan (being action they would take in the

first forty-five minutes after receiving the call). They then presented their solutions to the seminar.

The next phase of the exercise simulated the period (some hours later) when they had arrived at Healesville. They had about half an hour to prepare a briefing on WICEN's capabilities in support of the Emergency Services at this incident. The presentation to the seminar was to be the briefing they would give the Emergency Service Representatives at the local command centre.

Each syndicate received different instructions for the third phase. They ranged from operational planning for communication teams supporting searchers, through similar planning for teams supporting police controlling the area, to post incident plans and proposals for future WICEN training. The presentation, all expected, would again be in the seminar room to fellow participants. Wrong.

The Academy has a court room used for training of Police Officers. It was here that all were assembled to find that three months had elapsed and they were to appear before a



Photo 4 A group photo of those who attended the WICEN seminar.



Photo 5 Peter Nilon VK3PG takes the witness stand in the exercise judicial enquiry, appearing before Richard Scott (SES Regional Officer) and Hal Hallenstein (State Coroner), with David Johnson VK3YWZ as the clerk.

judicial inquiry into Emergency Service response to the incident. The inquiry was headed by Mr Hallenstein assisted by Mr Richard Scott, Regional Officer of the Victoria State Emergency Service.

The syndicate representatives who had drawn the short straw were required to take the witness stand and answer some very penetrating questions. This brought home a number of issues but clearly showed the need for retention of message forms and operator log sheets. In hindsight some post incident stress counselling may have been warranted after that experience!

The training program was broken by a formal meal on the Saturday evening in the Officer's Mess at the Academy. During that meal well deserved Certificates of Appreciation were presented to Leigh Baker VK3TP, Federal Co-ordinator, and David Tilson VK3UR, seminar organiser. No time was wasted, though, and Saturday night was devoted to presentations by Peter Tyers VK3KTS, on the WICEN National Training Syllabus, David VK3UR, on ADMIN (the emergency services communications network he

administers) and Howard Small VK3DLH, on publicity and sponsorship.

All participants agreed that the seminar was demanding but very beneficial. The assistance provided by the guest speakers and by the Victoria Police were key factors in the Seminar's success. Another important factor was the sponsorship offered by OPTUS Communications which covered the total cost of the weekend. This clearly saved WICEN's scant financial resources

for other tasks but, perhaps as important, is welcome community recognition of our efforts: we offer our sincere thanks for the support given by OPTUS.

Finally, the seminar organisers would like to give credit to the participants. Their total involvement in the weekend activities and their thoughtful responses to the exercises tasks augur well for WICEN's future in Victoria.

**372 Springvale Road Forest Hill VIC 3131*

AT

WIA News

Calling all Divisions

In October, Telecom introduced a new free call service which may interest WIA Divisions. Dubbed the "Statewide 1-800 Freecall" service, it operates rather like the long-established and well-known 008 Freecall service, employed by a lot of businesses.

As you know, calls to 008 numbers are free to callers from anywhere in the country; the holder of the 008 number pays for the incoming calls. The new 1-800 Freecall service is similar, but calls can only be made to a 1-800 number from within the state in which the holder resides.

Free calls to a 1-800 number can be limited by geographical region (for example, outside the state capital's metropolitan area), to given hours in the day and given days in the week — that is, calls to the 1-800 number will only get through between, say, 10 am and 2 pm, Mondays to Fridays. The customer can decide.

You may have the 1-800 number on a separate phone line and handpiece to your existing phone service, or simply have it diverted to your existing (ordinary) number.

Now here's a great opportunity to make it more easy and convenient for members and others who live outside a Division's metropolitan

headquarters to make phone contact. Being able to specify the days, times and geographical limitations to suit your requirements means you can control the costs, too.

By making it easier and more convenient for people to contact you, you encourage them to do so — an important factor in encouraging people to join and for members to order books or other material that your Division might sell. That's the same reason why so many businesses maintain a 008 national Freecall number — to encourage business. Having the 1-800 number divert to your Division's ordinary number (even if it's mostly answered by an answering machine) saves the installation cost of an extra line and phone. 1-800 account charges are \$10 per month (a miserly \$120 per year), plus call charges.

The NSW Division installed a 1-800 Freecall service in November. Their new Freecall number is 1-800 817 644. It is open between 11 am and 12 noon Mondays to Fridays and 7 pm to 9 pm on Wednesdays. It diverts to the Division's normal number, 689 2417. Callers in NSW and outside the Sydney metropolitan region can use the number to call the NSW Division (and that includes Penrith!). They are trialling it for 12 months.

Getting a Multiband HF Vertical To Go! (Part II)

"Doc" Wescombe-Down VK4CMY/VK5HP with more useful information about vertical antennas.*

The Vertical Antenna — How Good is it REALLY?

In response to many requests from other operators, it may be opportune to share some more basic facts about vertical aeriels. If we can all agree that a good antenna system makes or breaks an efficient communications station, then perhaps the rest of this article will generate some thought.

Most amateurs I know purchase their equipment, including the antenna. Usually this is a prefabricated Yagi-Uda, quad or multiband vertical for HF use. They then install this atop a roof, mast or tower and commence working the world. Some operators prefer the lower frequencies such as 160, 80 and 40 metres, so their antenna is often a length of wire (resonant or not) loaded by a tuning unit and erected at a compromise height (neighbours, councils, YL/XYL QRM and physical constraints are all prevailing).

But what are these good operators missing out on? They are missing the point that DOLLARS DO NOT REPLACE DESIGN! It doesn't matter if they run an FT1000 into an Alpha 76 or Henry amplifier in the wireless office (my preferred term for "shack"), if the antenna installation is below par, most of their money spent will be wasted. Most of the RF energy produced will be wasted.

Most operators live in built-up residential areas and have the associated constraints mentioned earlier. It is often amazing to me that some RF energy even LEAVES some of the installations visited.

Our key to DX operation is the VERTICAL RADIATION ANGLE of the RF energy that we produce. If we can cause this to be in the vicinity of 20 degrees to the horizon, for example, the first reflection zone (from F layer propagation) will be

approximately 1000 km away. A vertical angle of 50 degrees will produce a first reflection zone of 400 km approximately.

However, if we could LOWER the vertical angle to 5 degrees we would increase our first reflection zone distance to around 2400 km. Lowering the angle to 3 degrees will increase this to 3000 km. Although such low angles are not practically feasible, they illustrate the point:

FOR OPTIMUM DX OPERATION, LOWER THE VERTICAL ANGLE!

How does your installation line up? Well, as an example, a half wave dipole for 20 metres at a height of 11 metres will generate a "useful" major lobe between 15 and 45 degrees (all

figures approximate). Transmitted power is, therefore, being dissipated over a wide (first reflection) zone of 300 to 1700 km. Your 80 metre dipole suspended 15 metres high will send its "useful" major lobes out at between 30 and 90 degrees! This gives an effective first reflection zone distance of only 800 km and the antenna is primarily acting as a "cloud warmer", ie most of the RF energy produced by the FT1000/Henry 2 kW amplifier combination is propagated skyward, not to be reflected at all! Is that what you have spent all those dollars for?

It may be said that installing a Yagi-Uda array will improve this scene, but all such an array can do is REDUCE THE SIZE OF HIGH ANGLE LOBES, but CAN DO NOTHING TO LOWER THE DESIRED ANGLE OF RADIATION.

So what can we do? Use a vertical antenna.

A 5/8 wavelength vertical is the OPTIMUM HEIGHT for HF use. Anything bigger than this becomes useless as well as unwieldy at low frequencies, because the low angle lobe (desirable) reduces rapidly

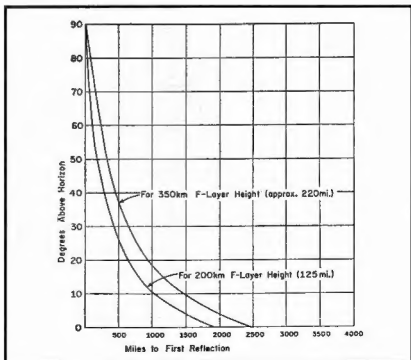


Figure 1 — Vertical radiation angle above horizon vs distance to first reflection.

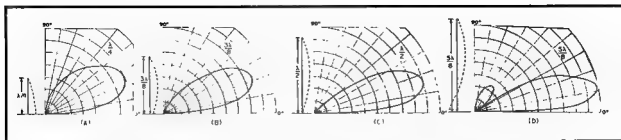


Figure 2 — Vertical radiation patterns for vertical antennas from quarter to five eighths wavelengths long.

(undesirable) and the high angle lobe (undesirable) increases rapidly and bifurcates into a number of useless angle lobes (undesirable).

1/4 wavelength verticals provide a useful lobe at 10 to 55 degrees; 3/8 wavelength 8 to 40 degrees; 1/2 wavelength 5 to 35 degrees and the 5/8 vertical 3 to 27 degrees ideally. This is why so many broadcast stations use this type of antenna.

OK, you say, but what about my location? How does that affect DX performance? A picture tells a thousand words and Figure 3 illustrates the importance of CLEARANCE beyond the ends of radials.

A 1/4 wavelength vertical radiator for 80 m is just about 20 m long, and, given a really good ground system, can have a radiated wave angle useful enough for DX efficiency. RF energy radiated from the top of the vertical will, in part, reflect from the ground about DOUBLE that length away from the base as shown. This shows WHY LONG RADIALS ARE SO VITAL FOR OPTIMUM PERFORMANCE. Beyond this zone

should be kept clear of obstructions (trees, buildings, power lines, other towers or masts, etc). This means that for 80 metre operation, no structure taller than the antenna should be closer than 80 METRES FROM IT! Smaller obstacles (fences, clothesline, garden shed, etc) may be a little closer but still not within 40 metres of the aerial!

In conclusion, allow me to quote from LEE (1984) by presenting these comparisons for your consideration.

"VERTICAL v HORIZONTAL:

- (1) Low angles are easily obtainable with a vertical antenna.
- (2) The vertical is simpler in construction. Even 50 or 60 foot self supporting pipe masts are easily erected.
- (3) The vertical itself requires less space. Ground radials or a ground plane of some sort are required for efficient operation. However, radials can be bent in directions which will fit into one's available space. (NOTE: The author lived in Warwick for one year on a very small allotment and radials for the roof mounted ground plane

antenna were actually wound around the house exterior and fastened to the support stumps and weatherboards as appropriate. Not ideal, but it worked).

- (4) The vertical is easy to feed at its base with unbalanced coaxial cable, using a "gamma" type of feed or a matching network as required.
- (5) The vertical discriminates against TVI because TV antennas are horizontally polarised (Not everywhere in Australia! — Ed). Some claim that it increases BCI. If this should happen, it is not due to its vertical nature but to its strong low angle radiation. ANY antenna which gives strong low angle radiation, such as stacked Yagis, could also cause BCI.
- (6) The vertical is somewhat more susceptible to rain and snow static and to noise impulses in the neighbourhood when used for receiving.
- (7) The vertical is non directional and thus cannot discriminate against interference from unwanted

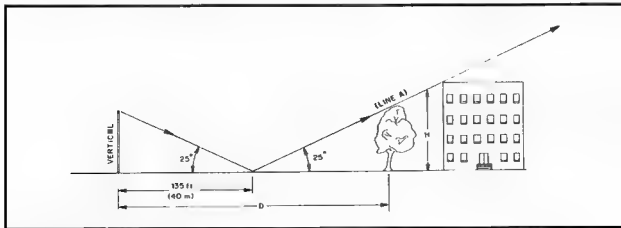


Figure 3 — Clearance required for ideal layout of a vertical antenna.

directions when receiving. However, one could erect three vertical elements and make a very neat switchable array to cover 60 degree sectors in azimuth.

- (8) the vertical is unobtrusive and pleasing to the eye of neighbours.
- (9) The gain of a co-linear vertical can approach that of a three element horizontal Yagi. It is actually greater at the low angles of interest."

Please note that the author claims no originality of material or ideas in these two article parts. But, from an OPERATOR's viewpoint, having used QRP CW for nearly 20 years into G5RV, extended double Zepp, dipoles, 2 and 4 element quads, 3 element monoband Yagi, 1/8, 1/4, 1/2, and 5/8 wavelength verticals with a variety of radial systems, I am now firmly settled with the 1/4 and 1/2 wavelength vertical for 80 and 40 metres as described in Part I. Having 10 plus hectares of land on an unobstructed hill at 900 plus metres altitude, no power lines for several kilometres and 120 halfwave radials, obviously assists.

However, anyone with, or contemplating erecting a vertical

antenna should be able to go about it better!

My thanks to Paul VK5TT for his assistance while I experimented at Whyalla SA on a city lot, and to Andy VK5AAQ whose 160 and 80 metre interest and experience is always appreciated.

References

- (1) "Low Band DXing" by John DEVOLDERE (ON4UN) — ARRL 1987.
- (2) "The Amateur Radio Vertical Antenna Handbook" by Capt Paul H Lee (N6PL) 2nd Edition — CQ Technical Series 1984.

*via Post Office Delteen QLD 4374

MF

**Sign up a new
WIA member
today — use the
form on the
reverse side of
the AR address
flysheet.**

WIA News

UK Call Book

The Radio Society of Great Britain (RSGB) published their 1994 Call Book at the end of October last. Containing over 60,000 callsign listings from the UK and Republic of Ireland it runs to 416 pages and costs nine pounds and fifty pence (plus postage and packing), the same as the 1993 Call Book.

In addition to the callsign listings, the RSGB's 1994 Call Book includes a wealth of information on awards, band plans, beacons, clubs, contests, DXCC countries, EMC, reciprocal licensing, packet radio, propagation, repeaters and satellites.

Contact:
RSGB
Lambda House
Cranborne Rd
Potters Bar
HERTS EN83JE

SOME THINGS HAVE NO COMPARISON

amateur
radio
action

The magazine for the serious radio operator
AT YOUR NEWSAGENT EVERY MONTH

The Bandwidth Limiting LF Converter Simplified

Lloyd Butler VK5BR* continues his development of low frequency receiving converters

Introduction

In my previous article (ref 1), I discussed reception of signals around 200 kHz and introduced an idea to limit and control the bandwidth of an LF converter. An experimental circuit was presented which made use of discrete component oscillator and mixer modules which I had on hand. I indicated that I would do some further work to simplify the circuit and in particular make use of the NE602 package which is a balanced mixer with inbuilt oscillator facility. The new circuit is now presented.

As in the previous circuit, signal pick-up is via a tuned loop antenna which also provides front end signal selectivity and the mixer output is fed to the receiver via a crystal filter around 1.5 MHz. The reasons for choosing this arrangement were given in the previous article and reference should be made to that article for the background.

The NE602

The NE602 package is a double balanced mixer with an onboard oscillator which injects its signal internally into the mixer. It can operate at frequencies well up into the VHF region and requires minimal peripheral components. To make the oscillator work, it is only a matter of connecting the oscillator section to a crystal or an inductor with associated capacitors in a Colpitts configuration.

The NE602 is finding its way into many amateur radio applications and because of this I think I should highlight a few precautions concerning its application. The first precaution concerns the low input level at which the third order intercept occurs. Let us explain this a little further. The mixer output frequency is the sum or difference of the oscillator

and signal frequencies. Other mixing products are also produced, the most significant of these being what are called the third order products. Whilst the output voltage of the desired sum or difference frequency increases linearly with the signal input voltage, the third order products increase in a steeper slope curve following a cubic function law. The curves of figure 1 from the NE602 application notes show how the two components

"... the input signal range should be between a few microvolts and 27 millivolts."

increase with different slopes. It can be seen that there is a theoretical point where the curves cross and the components have equal output voltage. This is called the third order intercept point. Having defined the point, the difference level between the two components, for any signal input level, can be worked out by extrapolating down the linear and cubic law curves from this point.

The level of third order products relative to the desired signal products is a measure of cross modulation in the mixer. To minimise cross modulation, we must ensure that the third order products are well below the desired output signal and for amateur radio purposes, I would suggest a figure of at least 40 dB. To satisfy this requirement our signal into the NE602 mixer should not exceed minus 33 dBm which into its 1500 ohm input resistance is 27 millivolts. (Compare this to the XR2208 package I have previously used as a VLF/LF mixer which can tolerate several volts before third order

products become excessive). The consequence of all this is that the level of signal input and pre-amplification (if used) must be carefully controlled to prevent driving the mixer into a state of serious cross modulation.

At the other end of the scale, the minimum level of signal into the mixer is set by its noise floor. The rated noise figure is 5 dB and this works out to around 0.3 microvolts of noise at a 1000 hertz bandwidth across the 1500 ohm input resistance of the mixer. For good signal to noise ratio, the minimum signal level should be somewhat above this figure. Combining this with the previous paragraph, we can deduce that the input signal range should be between a few microvolts and 27 millivolts.

The NE602 can be operated balanced or unbalanced and many of the receiver circuits I have seen in journals have used the unbalanced input form. From my own experience, the mixer performs much better in its balanced form and I don't recommend operating it any other way.

A. J & J COMAN ANTENNAS

Dual band co/linear 2M&70cm	\$ 95
2M co/linear	\$ 89
5 ele 2M	\$ 73
12 ele 2M	\$115
6 M J-pole	\$109
6 ele 6M	\$188
Duo 10-15M	\$259
3 ele 15M	\$179
3 ele 20M	\$289
M B Vert NO TRAPS 10-80 M	\$249
Tri band beam NO TRAPS	\$665
30M linear loaded 2 ele	\$360
40M linear loaded 2 ele	\$449
13-30M logperiodic 12 ele	\$865

Plus freight & packing
new lower freight rate applies

We are now the owners of exclusive range of W&G Wulf antennas and aim to provide the same quality, service and antennas that you have come to expect, so please call us and discuss your antenna needs

Bankcard, Mastercard & Visa accepted

Call ANDY COMAN VK3WH
Lot 16, Websters Road, Clarkfield, 3429
(054) 285 134

Another point worth noting is that the NE602 is fully biased internally. If a connection is made to earth or other point with a defined DC level, couple via a capacitor.

The package I obtained was an NE602A which apparently is an upgraded version of the NE602. In examining the application sheets, there doesn't appear to be much difference between the performance of the two. They are both available in different packages and temperature ranges defined by an additional letter code. For example, the N package is the 8 pin plastic DIP in a temperature range of 0 to 70 C.

The Converter Circuit

The complete LF converter circuit including the NE602 mixer (N2) is shown in figure 2. The same loop antenna and loop tuning system is used as in the previous circuit. The high Q loop circuit is tuned to resonance at the incoming frequency. This increases the loop sensitivity and provides selectivity to reduce the level of strong signals at other frequencies. If not attenuated, these could cross modulate the selected frequency in the mixer and hence some form of selective tuning is essential in the front end. If you have any ideas of using a broadband front end with this mixer, then I suggest you forget it.

The high impedance input circuit of the LF353 JFET operational amplifier (N1A) prevents loading and degrading the Q factor of the loop. The LF353 has a satisfactory noise figure and has a gain-bandwidth product of 4 MHz, which makes it suitable for the LF frequency range. If you examine my previous circuit, you will see that the loop interface amplifier had a considerable gain. Not so in the new circuit where the gain is set to 1, limited to prevent excessive signal drive to the mixer. Even with the low signal sensitivity of the loop, the mixer can be easily overdriven. For example, Adelaide Airport Non Directional Beacon (NDB) is around 8 km from my location and this gives a signal output across the tuned loop of 100 millivolts. This level is too high and I have provided a potentiometer RV1 at the output of the loop to reduce level if required. The converter is normally operated with

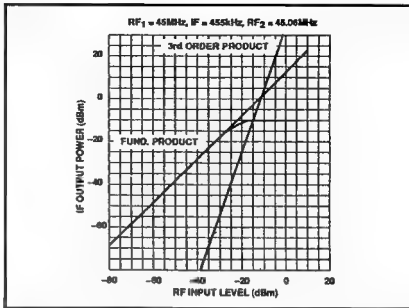


Figure 1 — NE602A — Fundamental and third order products showing third order intercept.

this control set maximum as the loop tuning provides adequate attenuation of strong signals. It is sometimes necessary to adjust the potentiometer down a little when tuning on to the strong station or when tuning to a weak one close in frequency to the strong station.

As discussed earlier, the mixer works best in a balanced mode and a transformer can be used at the mixer input to achieve this. Because we are operating down to 150 kHz, we ideally need a primary inductance of 2 mH or more. This is difficult to achieve with the usual toroidal core and is more easily achieved with a small pot core. In my previous circuit, the mixer input was fed via a small toroidal core transformer and I have to confess that there was signal loss due to lack of primary inductance. This loss was made up by extra gain in the drive amplifier. The LF353 has two amplifiers in a single package and in the new circuit I eliminated the need for a transformer by connecting the second amplifier (N1B) as a phase splitter to provide the second half of the balanced input. With the phase splitter provided, the gain from loop output to balanced mixer input is doubled to a value of 2.

No problems were encountered in setting up the oscillator. As in the

previous converter, the oscillator is set to tune from 1.65 to 1.87 MHz so that with a first IF frequency of 1.5 MHz the converter operates from 150 to 370 kHz. Using the Colpitts arrangement shown in figure 2, a 27 microhenry inductor (L1), a 130 pF variable capacitor (C19) and a number of fixed capacitors achieve the tuning range. The form of inductor is not important but I wound 28 turns of 28 B & S wire on a Philips 97170 toroidal core and juggled the fixed series and shunt capacitors to get the precise range. A 27 microhenry miniature choke also worked OK but I thought the toroid, with its confined magnetic field, might be preferable.

The crystal filter is the same as used in the previous circuit with a 1.5 MHz crystal frequency selected to achieve a minimum bandwidth of around 200 to 250 Hz for narrow band signals. The precise frequency is not important provided the oscillator used in the mixer is adjusted accordingly for the difference frequency. The logarithmic law potentiometer (RV2) across the crystal allows bandwidth adjustment and this was explained more fully in the previous article. The potentiometer must be connected for maximum resistance when set fully clockwise.

The circuit is designed around a 12

above the minimum discernible level of the loop-converter combination.

Conversion gain from the LF353 input to the crystal filter output is approximately 2 for the widest band setting and 0.5 for the narrowest band setting. Most reasonable receivers can handle signal levels in the order of microvolts and should be comfortable with this conversion gain.

Operated as described so that the mixer is not overdriven, the loop-antenna/converter unit seems free of the odd birdies, often experienced with some superhet receivers which have been extended to tune down to the LF band.

Conclusion

Adding this converter to an existing receiver is a simple way to extend band coverage down to the LF region. Its design was aimed at the reception of experimental signals around 200 kHz such as those recently transmitted from Gordon, Victoria and recent experiments in New Zealand.

The article is an extension of my previous article where I introduced the idea of controlling the received bandwidth within the LF converter. Use of the NE602 mixer has simplified the circuitry. A few notes which I have given concerning the application of this mixer might be of help to others making use of this versatile package. To follow on, I might have look at extending operation down to the VLF range and see how well I can make it work. If it looks OK, a third article in the series might be forthcoming.

References

1. Lloyd Butler VK5BR — A Bandwidth Limiting LF UP Converter for Frequencies around 200 kHz — *Amateur Radio*, December 1993.
2. Lloyd Butler VK5BR — A Discussion on Mixers — *Amateur Radio*, April 1988.
3. Signetics Product Specification, NE602 & NE602A.
4. Lloyd Butler VK5BR — VLF-LF and the Loop Aerial — *Amateur Radio*, August 1990.

*16 Ottawa Avenue, Panorama, SA 5041

BT

WIA News

Special Event Station

To commemorate the 50th anniversary of the battle of Kwajalein Atoll in the Pacific Republic of the Marshall Islands, special event station V73AX will be on the air, courtesy of the Kwajalein Amateur Radio Club (KARC).

Starting at 1745 UTC on 31 January, the station will operate through to 1920 UTC on 5 February, 1994. Look out for V73AX on the HF bands and six metres (conditions permitting), operating SSB, CW and RTTY.

If you manage to make contact, QSL (with SASE or IRC) to:

KARC

PO Box 444

APO AP 96555 USA

Thanks to John A Taylor V73JT, Vice President of the KARC, for that item.

Region 1 Digital Bandplan Changes

At the International Amateur Radio Union (IARU) Region 1 Conference late last year, the HF RTTY mode bandplan allocations were renamed "Digimode", to cover all digital transmission modes, including RTTY, AMTOR, PACTOR, Clover and Packet. Some band allocations were increased.

November last's issue of the RSGB's journal *Radio Communications* carried a report on the Conference decisions; the RSGB's 1994 *Call Book* carries updated bandplans.

Direction Finder Ducks Back After China Success

Wally Watkins VK4DO, intrepid amateur radio direction finding (ARDF) expert and international traveller, has returned from the wilds of Huairao County in the Peoples' Republic of China, enthusiastic about his Australian team's showing at the IARU Region III contest, held over 5-10 October.

The Federal WIA supported Wally's effort to compete in the ARDF contest in China with a

donation of \$1000 towards the team's expenses, made earlier in the year.

Other countries taking part in the Region III International Amateur Radio Union's ARDF contest included: Bulgaria, China, North and South Korea, Japan, New Zealand and Taiwan.

Interviewed by the *Sunshine Coast Daily* on his return Wally, a resident of Proserpine Qld, said, "Taking into consideration that the Asian countries have been taking part in amateur radio direction finding for some 30 years, the Australian team performed quite well for its first effort."

Wally and Frank Sleep VK4CAU teamed up to enter the old timers' section of the ARDF contest. Now it must be understood that these direction finding contests are not like the foxhunts we know and love in Australia. They're more a cross between a pedestrian (hah!) foxhunt, orienteering and a cross country foot race. Not for the faint hearted or unfit.

From the start line, you have to charge off — up hill and down dale — to find and record on a card a series of hidden transmitters (all five of them!), before reaching the finishing line. And your time for the hunt/race is recorded — to the nearest second!

Each race is refereed. Before the contest, a training course for international class referees was held in Huairao County and Wally is now Australia's first international referee.

Well done, Wally and team.

Licence Exam Pass Rates Improve

Since the WIA Exam Service started in October 1991, the average per annum pass rate of candidates has climbed from 46.9% in 1991-92, to 57.52% for 1992-93.

Over the period from October 1991 through October 1993, 4063 candidates sat for 7102 subjects. Altogether, 3886 achieved a pass, 54.72% of candidates who sat.

EQUIPMENT REVIEW

Timewave DSP-9 and DSP-59 Audio Digital Signal Processors

Ron Fisher VK3OM and Ron Cook VK3 AFW



The DSP-9 and DSP-59 sitting on top of the Kenwood TS-430S transceiver used in the evaluation of the filters.

The latest device to fight interference in radio reception is the digital signal processor. Of the several being produced in the United States, Daycom (the new name of Stewart Electronics) have selected the Timewave DSP-9 and DSP-59 audio noise reduction filters. I must admit that I am not an expert in digital electronics, so I have asked my good friend Ron Cook VK3AFW to write a few words on just how these things work. Before handing over to Ron, I intend to report on the operation of these units connected to typical amateur equipment and used in a quieter than normal location.

The first illustration shows them sitting on my TS-430S transceiver which was used throughout the tests. Both filters are contained in neat black plastic cabinets with the

controls on the front panels and the input/output and power connectors at the rear (see the second illustration). The input to both units comes from the external speaker output of the associated transceiver and an inbuilt audio amplifier drives the speaker. Both units require 12 to 14 volts DC at about 500 ma. Of course a reasonable quality external speaker is also needed to complete the setup. For some strange reason, Timewave seem to be confused as to which type of connector to use. The DSP-9 uses phono sockets for both input and speaker output while the larger DSP-59 has 6.5 mm phone sockets for the same functions plus an extra 6.5 mm socket for line output. Seems odd that they didn't use a 3.5 mm socket for at least the speaker output. Both use a standard DC

connector with the centre pin for positive. A DC connector is supplied with the processors.

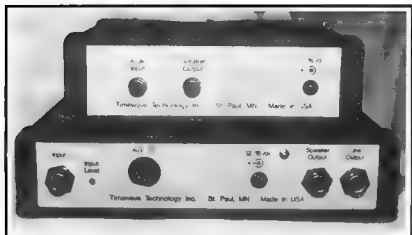
So what do Timewave claim their processors will do? Firstly, they are designed to reduce all types of residual noise. Secondly, they will eliminate any number of heterodynes audible within the band pass, and finally they have very steep sided audio filters useable on both voice and CW signals. In the case of the DSP-9, voice filters are provided for 1.8, 2.4 and 3.1 kHz and for CW, 100, 200 and 500 Hz filters are selectable. The larger DSP-59 has basically the same features but with much greater flexibility and a wider range of filter selections. All functions on the DSP-9 are selected via six front panel push buttons plus a normal rotary audio gain control which also has an off position to cut the 12 volt power supply. The DSP-59 uses three rotary controls to select the various functions plus an audio gain/on/off control.

Two LEDs help to set the input audio level, one flashing with normal input and the second flashing to indicate an overload condition. A 3.5 mm socket is also included on the front panel to take a pair of headphones. This is compatible with stereo phones so you will be able to borrow a pair from your teenager's Walkman and plug in.

The Timewave DSP-9 & 59 in Use

As all of my speakers terminate in 3.5 mm plugs, I used adaptors to connect into the two Timewave processors. Another lead with a 3.5 mm plug and either a phono plug or 6.5 mm single circuit plug is needed to get the audio into the processors. The 12 volt DC supply needs to be well filtered and regulated. I tried a 500 mA plug pack power supply but it caused all sorts of funny hum problems.

A reasonably high audio output level from the transceiver is needed to get the "normal" LED to flash and it is very important that this should happen. When I first hooked the unit up, I thought I would take a short cut and feed the processor from the headphone socket on the TS-430. It proved impossible to drive the processor hard enough so a quick



The rear panels of the filters with the DSP-9 on top.

change was made to the speaker output.

First, I had a play with the filters. Changing from the 3.1 to the 2.4 kHz band pass produced a just perceptible change in audio quality but heterodynes and noise above 2.4 kHz disappeared like magic. Changing to 1.8 kHz brought an even greater reduction in off frequency noises with a slight reduction in top audio response.

The effect on CW with the narrow band pass is equally dramatic. The larger DSP-59 allows not only the choice of selectivity but also the choice of the centre frequency which makes it very suitable for digital modes.

Next on to the noise and heterodyne reduction features. As I mentioned earlier, I live in a very quiet location. There is only one thing that makes life on the air difficult. Rain static. Well, I had to wait to test that one out. Reduction of general noise, such as static, was interesting. With a moderately strong signal, the effect was often amazing. The signal would take on a slight synthesised sound, the noise would fade into the background and make the audio really stand out. However, as the signals became weaker the effect diminished with it. Enough to say that I could not find a case where I could make a totally unreadable signal readable. By far the best effect was to remove noise on moderately strong (about S6 to 7) signals. At long last the rain came (you don't have to wait too long in the Melbourne area) and

with it S9 rain static. I regret to say that the processors made no improvement at all.

The heterodyne reduction facility is startling in its effectiveness. Just push the button on the DSP-9 or select the switch position on the DSP-59 and the whistles go. What more can be said? Ron VK3AFW tells me that he uses his DSP-9 for weak two metre CW use and claims that it really does make almost unreadable signals readable. I also noted that use of the transceiver noise blanker in conjunction with the DSP can add to the effectiveness of the processor.

The DSP-9 and DSP-59 Conclusions

Are these units worth while or not? The answer to this is a very definite yes. If you are a keen CW operator it would be hard to live without one. I don't doubt that in time, perhaps a short time, these units will come built into transceivers. Crystal IF filters will become a thing of the past and steep sided digital filters will become the norm. In the meantime, enjoy the advantages of digital signal processing with the DSP-9 and DSP-59.

I hope that when Timewave update these models they might sort out the connector problems and maybe even have time to write a better instruction book. The DSP-9 is priced at \$339 and the DSP-59 at \$629 from Daycom Electronics.

Now over to the other Ron to tell us just how these little electronic marvels work.....

How Does a Digital Filter Work?

We are all familiar with analog filters, an example of which is shown in Fig 1. This is a single section RC low pass filter. DC and low frequency AC signals are not attenuated but as the frequency is raised, so the output falls. That is, the attenuation increases with frequency. The phase of the output signal also lags behind the input signal, the phase difference being greater at higher frequencies. Cascading several of these circuits gives both a sharper band edge roll-off and a greater phase shift.

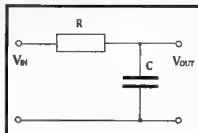


Figure 1 — Simple analog low-pass filter circuit.

We also know that if a DC voltage is suddenly applied to the input, the output rises slowly to the input value, the rate of rise being determined by the product of R and C. In other words the circuit in Fig 1 is also a delay circuit. We already know this as RC networks are used for the basis of many timing circuits. Further study would reveal that an analog delay circuit using discrete components usually has a bandwidth which is inversely proportional to the delay.

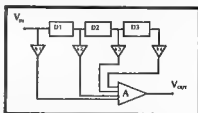


Figure 2 — Filter using a tapped delay line. D1, D2, D3, incremental delays K1, K2, K3, K4 multiplication constants A summing amplifier.

Fig 2 shows a series of delays. This could be an analog system with taps. The input signal and the delayed signals from the taps are amplified or

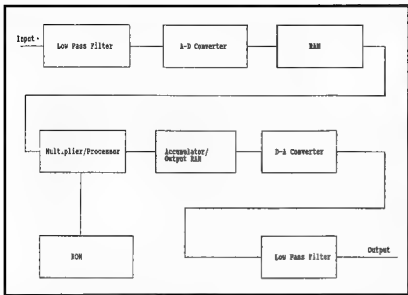


Figure 3 — Block diagram of a digital filter.

attenuated and added together to produce the output signal. With the proper components and values this will give exactly the same response as three RC cascaded filters. The circuit can be implemented using analog components or with digital circuitry.

Fig 3 shows a digital version of Fig 2. Firstly, the analog signal is passed through a low-pass filter to avoid a problem called aliasing. An analog to digital converter (A-D) then converts instantaneous values of the analog input signal to a digital number. The effect is like a picket fence where a solid fence is approximated by many thin pieces of the same height (see Graph 1). Sampling allows reproduction of frequencies up to half the sampling rate. It can down convert even higher frequencies to ones less than the sampling rate, a situation not wanted in this application. This creation of new frequencies is called aliasing and is avoided by filtering out all frequencies above half the sample rate.

Each digital sample is stored in digital memory (RAM). Each memory location represents a tap on our delay line. We select the stored value when we read the memory location. The delay is generated by reading memory locations at specified rate. A multiplier chip accepts the stored values and multiplies them by

predetermined constants which are stored in digital memory (ROM). The results are added into an accumulator. The digital number in the accumulator is converted into an analog voltage by a digital to analog converter (D-A) and the digitising noise removed by a simple low-pass filter.

The resultant output signal will be filtered in exactly the same way as would have occurred in the analog circuit of Fig 2. A digital filter may have more than 25 taps in even a cheap system, resulting in very sharp roll-off at the band edges.

Having implemented a low-pass filter with only a few readily available chips, the question arises, can high-pass filters be constructed? The answer is yes, and what is more they can be combined to form a band-pass filter with linear phase response and very sharp roll-off. The circuit connections remain the same, however the constants used in combining the delayed samples can be changed for each calculation if required.

A system where the input signals only are used implements what is called a Finite Impulse Response filter (FIR filter) and a system that takes the processed signal and subjects it to delays and combines it with the input can be used to implement an Infinite Impulse

Ham Log is the gold standard log program — world-wide

Neil Duncan in ARA said "Professionally-presented product. This is the way to do it properly. I have no hesitation in recommending the package." And that was Version 1!!!!

On version two, Len Shaw wrote "The author has gone considerably further (on features) than in any log program. ...you are unlikely to find a better log-keeping program anywhere. Having seen and used a wide variety of shareware and commercial programs, I believe this one to be excellent value for money. I would say the same if it was double the cost." Born in 1990, we now have version 2.4!

Some user comments. "Golly I am impressed. Over the Moon!" "I have a number of logs and Ham Log is on the hard disk to stay!" "It is without doubt the best Log I have ever used — you have covered everything — a breeze to use." "A super program and Australian!" "Thanks for the excellent back-up service!" An FK8 wrote to the magazine *Megahertz*: "My job — programmer of 14 years... I've acquired 10 log programs without ever making use of them until I purchased Ham Log. It has maximum ease of use whilst keeping a rare functional richness... perfect statistics, listings and rare tools — torture it: one use will make you appreciate its flexibility." VK6PY, VK4VHP, VK5QB, FK8GV

Put your IBM (640k) computer to use. Ham Log overflows with useful features (space does not permit to describe — ask for brochure) Full DXCC info, and Statistics, 8 Modes, Contest Mode; Prints QSLs, Country's Time, Beam Headings Distance, Language translations, plus stacks more! Fast, Menu driven, Help + 80 page published manual. Enjoy the fascinating benefits Ham Log provides.

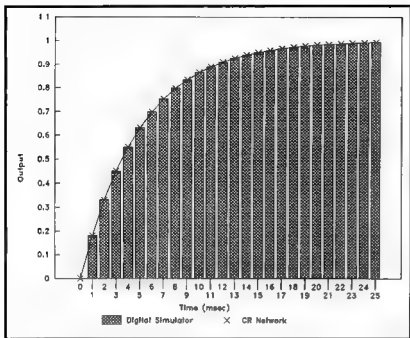
ONLY: \$57.50 Demo: Free

"Limited to first 100 orders 720K"

incl P&P to VK

BANKCARD VISA MASTERCARD
ORDERS PLEASE SUPPLY FULL
NAME, ADDRESS, PHONE, CALL SIGN,
DISK SIZE

Robin Gandeve, VK2VN
Dr Ni Fi P/L 74 Carrington Rd.
WAVERLEY 2024 PH: (02) 369 2006
FAX: (02) 369 3069



Graph 1 — Simulation of CR network.
The output of a CR network as in Fig 1 is compared to a digital simulation of the same network. The time constant is 5 milliseconds and the digital algorithm is $V_{out} = 0.18127 V_{in} + 0.81873 V_{out}$.

Response (IIR) system. The DSP-9 used the FIR implementation partly because it provides a linear phase response which gives the minimum amount of ringing for narrow filters.

There are of course some compromises. The multiplier must read each memory location, do the multiplications and transfer results to the accumulator before the A-D takes its next sample and the D-A puts out the next signal. The speed required limits inexpensive digital filters to the audio range but military receivers are using digital filtering at an IF of 1.6 MHz.

The DSP-9 uses a special chip which performs both A-D and D-A conversion and includes all necessary filtering. It uses a 16 bit process. The processor contains sufficient RAM to accommodate all the samples. The program and all constants are stored in a 256 k EPROM. The results of each computation are placed in a quad flip-flop for the D-A to convert back to audio. A 5 watt amplifier drives an external speaker.

Digital filters in the amateur radio market are mostly using 16 bit word

lengths and combined multiplier accumulator chips. A 16 bit word allows a dynamic range of 96 dB but the band reject attenuation is around 60 dB for most digital filters on the amateur market. This is usually very adequate.

One problem that appears is the small number of bits available to represent weak signals. Consequently they sound like a strangled Dalek. Faster systems with higher resolution D-As and 32 or 64 bit processors will no doubt appear eventually and give improved weak signal recovery, increasing the fidelity and out of band attenuation.

Having converted to digital form many samples of the signal, plus noise and interference, there is an opportunity to perform other functions as well as filtering. Notching of constant tones can be achieved by

various means, depending on the computing power available. Reduction of random noise can also be achieved by comparing delayed samples with the present sample. Audio signals show a high degree of correlation but noise does not, so the noise can be rejected. This provides a basis for implementing a noise reduction scheme in addition to that obtained by bandwidth reduction.

MF

WIA News

"Instant licences" for US Hams?

A US amateur radio society has petitioned the Federal Communications Commission (FCC) seeking a rule change that would permit "instant" amateur radio licensing.

The Western Carolina Amateur Radio Society (WCARS), based in Knoxville, has asked the FCC to allow amateur operating privileges to start immediately someone passes the required exam, without having to wait for a licence to be issued.

When licence exam candidates in the US pass their exam, they're issued with a Certificate of Successful Completion, with which they can apply for their first licence. WCARS' instant licensing scheme would save the frustrating waiting period for new hams, the protagonists claim, as well as saving the FCC time and money as the impatient new hams keep calling them for news of their licence.

WCARS proposed a call sign structure based on the US Class D Citizen's Radio Service (CRS) precedent, set a few years ago when the FCC deregulated the CRS.

From the Westlink Report.

**Support the
advertisers who
support Amateur
Radio magazine.**

Technical Abstracts

Gil Sones VK3AU1

The Green Dipper

An intriguing title for an article which appeared in Short Wave Magazine for May 1993 and described a different Dip Oscillator. The author, Bill Wilson, described a useful Dip Oscillator with a very simple circuit and which used a tuning capacitor from an AM/FM transistor radio. The case was a cut down sutures box.

The AM/FM tuning capacitor provides a number of sections ranging from around 20 pF for the FM sections up to a couple of hundred pF for the AM sections. The appropriate sections are selected by links in the coil sockets. The coil sockets used were six pin edge connectors.

Coils were attached to the edge connector and a card dial scale so that the scale was changed with the coil. The coil details and coverage are dependent on the actual capacitor used. For a guide try the use of all capacitor sections for the low ranges up to 10 or 11 MHz. Then use both FM sections in parallel up to 30 MHz. At VHF just one section of the FM gang should suffice. The band

coverage and the bandwidth of the tuning are up to the constructor.

The circuit is given in Fig 1 and a neat package for soldering the FETs together is shown in Fig 3. Whilst the original used a PCB, direct wiring using a copper laminate as a ground plane and panel would be quite suitable. The components are listed in Fig 2. Whilst C6 appears twice on the circuit in Fig 1 it is fairly non critical and the same value capacitor can be used in both positions.

The circuit used for the oscillator is a negative resistance design using a pair of FETs. Note that one FET is an N channel and the other is a P channel. The supply of the FETs may be difficult but a quick ring around Daycom, RS Components, Farnell and your other suppliers should turn them up. The 2N3820 is likely to be the hardest to obtain.

Bypasses C5 and C6 across D5 should have very short leads. The connections from Tr1 and Tr2 to both C5, C6 and to the tuning capacitor and coil should be very short. By short I really mean zero lead length as these components are all part of

an oscillator circuit extending into the VHF region. C4, whilst listed, can be a gimmick capacitor made by twisting two short insulated wires together for a capacitance known as enough. R7 can be included or omitted as it is only to damp oscillation and so make the dip more apparent. R7 could be included only on those coils where it is needed and its value varied to suit.

A more complex circuit with provision for modulation and recharging NICADs was also given. The complex circuit is not reproduced here as the basic circuit is quite adequate as a Dipper. There is some virtue in the KISS approach in such projects.

After all that you are probably wondering about the green title. Well, the green comes from the re-use of parts from the scrap bin such as the sutures box used for the case. Have a look around and there are probably many alternatives for cases. Similarly, the AM/FM tuning capacitor can be salvaged from a radio that is heading for the bin.

Fig 2 Parts List.

Resistors 1/4 W

- R1 1M Ω
- R2 1K Ω
- R3 1K Ω
- R7 10K Ω

Potentiometer

- R8 5K Ω

Capacitors Disc Ceramic

- C1, C2, C3 AM/FM Gang Film Dielectric
- C4 4pF
- C5 1nF
- C6 1nF
- C6 1nF

Semiconductors

Diodes

- D1, D2 OA81 or sim.
- D5 5.1 V 400 mW Zener diode

- TR1 2N3819

- TR2 2N3820

- TR3 2N3710

(try BC108 or sim)

- Battery B1 9 V

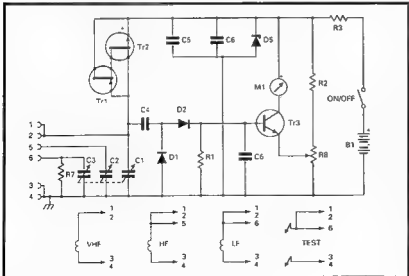


Fig 1 Basic Circuit.

Mobile Supply Switch

The high DC drain of mobile rigs, together with the sort of car battery capacity used, can lead to embarrassing situations. The DC drain of many mobile rigs is enough to significantly drain many car

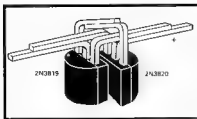


Fig 3 Connection of Tr1 and Tr2.

batteries over a day or two. Modern car batteries are designed to start the engine and do not have much in reserve for running your rig over an extended period with the motor stopped. The radio is also designed for use with the engine running and hence the 13.8 V supply requirement.

One solution is to run the radio off the accessory line but the transmit drain may make this not viable. Bill Wells KA5DMY provided a solution in *Hints and Kinks*, in QST for July 1993. The solution was to use a couple of automotive lighting relays to switch the line to the battery. Provision was made to postpone switch-on until the motor had started in order to avoid transients. The relays are held in by the accessory line.

The circuit is shown in Fig 4. The radio goes off when the ignition is turned off. The radio will not come back on until S1 is depressed after the ignition switch has been turned on. S1 is a momentary action switch. The diode isolates the radio from the accessory line.

In running the leads to the battery make sure to fuse both leads. Take the negative lead from the car chassis or engine block. This is to

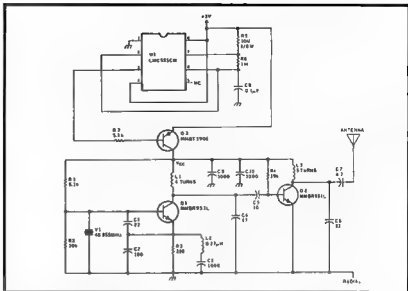


Fig 5 Teeny Weeny Tx.
Caps are pF unless otherwise noted.

ensure that part of the starting current does not pass through your radio. The radio is also grounded via the antenna and the possibility of a high stray current path exists. Hence the fuse often found in the negative lead. Better replacing a fuse than a radio.

Teeny Weeny Tx

Here is a small two metre Tx for hidden transmitter hunts which should be very easy to conceal. The original measured 32 mm x 13 mm and could be powered by a 3 V Lithium button cell to give a couple of milliwatts.

The design appeared in 73 *Amateur Radio Today* for May 1993 in the *Homing* in column of Joe Moell K0OV. The Tx was developed by Ken Bauer KB6TTS who used it to track gliders. There are smaller designs but not many. The units used to track birds in flight are really tiny but this design, using surface mount bits, is capable of home construction.

The circuit is given in Fig 5. The circuit board layout is given in the original article but would suffer in reproduction. The original used a double sided board and, provided short, direct paths are used, you should be able to make a suitable one of your own.

Circuit boards were available in the USA direct from the original designer. If you are really keen, then obtain a copy of the magazine and you may be able to order a PCB direct.

For surface mount parts you may have to search around a bit. They are available but you do have to look for them. The larger and more professional suppliers can probably help.

The coils are wound on a .060 inch drill bit. Try a 1.5 mm drill bit as it is close to this size.

With a little bit of fiddling you should be able to make a close enough copy. The fun then starts when you use it in some really sneaky transmitter hunts.

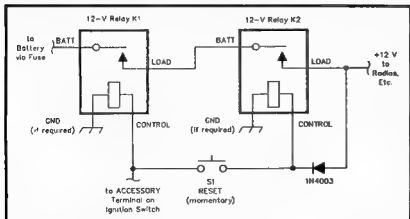


Fig 4 Mobile Supply Switch.

Some Further Notes on Interference Cancelling

Lloyd Butler VK5BR* adds some further notes on cancelling interfering noise.

Introduction

In the September 1992 and January 1993 issues of *Amateur Radio* magazine, I discussed how interference could be cancelled at the antenna input and introduced two circuits which could be used to achieve cancellation. I have a few notes to add to the original discussion and will also comment further on the SEM QRM Eliminator briefly mentioned in the September 1992 article.

Earth Noise

In the previous discussions it has been assumed that interfering noise is induced into the antenna wire from a radiated noise source. When the antenna is partly formed by an earth system, such as in the Marconi antenna, this is not always the case. Sometimes the noise is conducted in through the earth system rather than via the sky wire. In this case, signal pickup from another auxiliary antenna might not provide sufficient noise voltage for cancellation. If interference cancellation cannot be achieved using an auxiliary antenna, try connecting the auxiliary antenna input to the main antenna ground connection. On a number of occasions I have had success using the ground connection when the auxiliary antenna did not provide a satisfactory result.

Receiver Input Matching

In my circuit published in the September 1992 issue of *Amateur Radio* magazine, I used a matching transformer to face the receiver input. In the circuit published in the January 1993 issue I simplified this by using a matching resistor (R8 in the circuit). This arrangement introduced a drop in receiver input level when

interference cancelling was switched in. The drop in received signal heard annoyed me a little and I eventually deleted R8 and modified the circuit to include the original transformer arrangement. With the circuit changed, I also found it necessary to add a resistor (a new R8) to isolate V2 emitter from transformer T1. This improved circuit stability and reduced a tendency for signal cross modulation apparently caused by the interface. The modified circuit detail is shown in figure 1.

SEM QRM Eliminator

The interference cancelling unit made by SEM called a QRM Eliminator can be found in some radio shacks. I thought it would be of interest to further discuss its operation and possible performance. Apparently no circuit diagram is supplied with the unit but I have learnt a little about its operation.

A block diagram of the interference cancelling arrangement is shown in figure 2. The auxiliary antenna signal is fed via a phase control network to the gate of an FET stage. The phase of the auxiliary signal is set by the adjustment of two potentiometers in the network. The main antenna is fed via a gain control potentiometer to the gate of a second FET stage. The two adjusted signals are combined by parallel connection of the FET amplifier drains. There is no tuning of any resonant circuits and the amplifiers operate in a broad band mode. Relays are provided to switch out the unit from the main antenna and earth the auxiliary antenna circuit when transmitting.

According to the advertised specification, the mark 2 SEM unit has a frequency range of 100 kHz to

60 MHz. I pointed out in my first article that, to achieve a universal adjustment over a range of frequencies, 360 degrees of phase adjustment was required over all of the frequency range. Just how this is achieved over such a wide frequency range in the SEM unit seems a mystery. I understand that the phase control network is similar to that shown in figure 3.

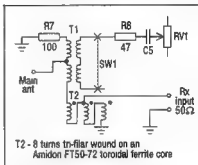


Figure 1 — Modifications to receiver input circuit.

A theoretical study of this network for all possible settings of the two potentiometers looked a bit tedious so I made an assessment of its range of

JPS COMMUNICATIONS, INC

NIR-10 NOISE/INTERFERENCE REDUCTION UNIT

Allows the reception of difficult to read signals.

It has 4 operating modes
NIR (Noise and Interference Reduction Mode)

PEAK (PK) mode, very effective at reducing white noise Notch Filter (NF) mode, removes multiple heterodynes

Bandpass mode in which the unit operates as a digital audio filter with switch selectable bandwidths. Either the PK or NF mode may be used in Bypass or NIR modes. In Bandpass mode the audio bandpass may be moved anywhere in the 300 to 400 Hz range via a front panel control

Bypass Mode removes all processing delay, but allows the PEAK and NOTCH functions to be used in "REAL TIME"

It is connected to the speaker, phones or live audio output of the receiver

For further information contact

ZRV ELECTRONICS PTY LTD

10/29 Peel St ELTHAM VIC 3095

Tel BH (03) 439 3389

AH (03) 431 0667 FAX (03) 439 2483 ACN

054 992 406

Agents for DRAKE R8 World Band Radio

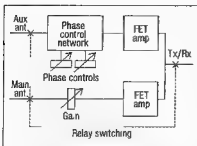


Figure 2 — Block diagram of SEM unit.

phase control by empirical means. I wired up the circuit of figure 3 and carried out tests with a signal generator fed to the input of the network. Phase shift and attenuation through the network was monitored using a dual trace CRO with one of its inputs connected across the network input and the other across the network output.

Whilst various adjustments were accompanied by considerable variation in attenuation, I found that by twiddling the two pots I could achieve 360 degrees of phase variation for a range of frequencies between 1.3 and 18 MHz. This of course covers 1.8 MHz and the noisiest end of the HF band. I could not achieve a complete 360 degrees of adjustment below 1.3 MHz or above 18 MHz. From this result one must conclude that, whilst interference cancellation might be possible outside the range of 1.3 to 18 MHz, complete cancellation might not always be achievable for certain conditions of phase between the two antennas.

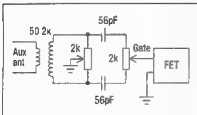


Figure 3 — Phase control network similar to that used on the SEM unit.

I must say that I am not too impressed with the idea of the wide band untuned FET stages. Amplifiers are never perfectly linear and, from my own experience, this provides an invitation for cross modulation by strong signals operating at any

frequency within the range of the amplifier. Noting that the amplifiers are designed for operation down to 100 kHz, there is also the chance of cross modulation by localised noise which often reaches quite high levels in the LF-MF spectrum. There is not much point in cancelling out one lot of noise if, in doing so, another is introduced.

I suggest that if you own one of these units and you experience any form of cross modulation, you might improve its performance by tuning the two antenna input circuits. It might only be necessary to tune the auxiliary circuit if adequate pretuning is provided in the main antenna circuit by the ATU or other transmitter matching device.

In my own interference cancelling system, I certainly found pretuning of the auxiliary circuit was necessary to stop the odd birdies. In my case, pretuning the main circuit was

unnecessary because it was not fed via an amplifier stage.

I have heard that the untuned FET amplifiers in the SEM unit introduce noticeable inherent noise. Here again is where pretuning the inputs can provide an advantage. Injecting the antenna signal via a parallel tuned circuit provides a signal voltage gain approaching the value of circuit Q and hence the signal to noise ratio referred to the amplifier input is improved by this gain factor.

I must emphasise that my discussion on the wide band amplifier design is given in the light of experience with my own noise cancelling circuits and not on any practical testing of an SEM unit. Further comments would be welcomed from any reader who has had experience with the SEM QRM Eliminator.

* 18 Ottawa Avenue, Panorama SA 5041

BT

WIA News

One Pizza Supreme, Hold the Anchovies

You might wonder if your 2 m handheld has turned into a cellphone when you hear food orders, weather forecasts and business appointments being relayed via repeaters as you travel the United States in future.

In mid-September last, the Federal Communications Commission (FCC) changed the rules for US amateurs "Relaxing Restrictions on the Scope of Permissible Communications in the Amateur Service".

The new rules permit limited business communications on the ham bands — hence the reference to weather information, business appointments and the ordering of food.

"Fears that the VHF bands would become a pizza ordering service so far appear to half-baked," said the *W5YI Report*.

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of November 1993.

L50320	DR R M DOUGLAS
L50322	MR L J KELLY
VK1MIA	MR G NAIRN
VK2KDH	MR D W HARDING
VK2MCC	MR C COOL
VK2TJ	MR L E SIMMONS
VK2TRB	MR R M BROWN
VK2XGM	MR G P MAIZELS
VK2ZKB	MR K C BARNES
VK3AUR	MR M WIMBOURNE
VK3EVK	MR A J GILBERT
VK3TRK	MR B SCHRAPE
VK3TRT	MR R SMALLWOOD
VK5EB	MR C J MCCARTHY
VK5DI	MR C F MACKINTOSH
VK5ZAI	MR J A HUTCHISON
VK5ZJP	MR J P MALUSA
VK6NLB	MR C L BAKER
VK6YBQ	MR H WUNDERLICH
VK6ZWY	MR J W YEO
VK7ZRJ	MR R J GRACE

Amateur Radio Annual Index 1993

What a tremendous amount of absorbing reading was provided in *Amateur Radio* magazine during 1993, much of it the accounts of WIA members' experiments, construction projects and experiences, and all to do with this most fascinating of all hobbies, amateur radio.

If you see an item in this index which you want to read, and you cannot locate,

or do not have, that particular copy of *Amateur Radio*, back issues of the magazine are available from the Federal Office to current WIA members at \$4.00 each, which includes postage in Australia.

If a back issue is no longer in stock, photocopies of articles are available to members at \$2.50 each (plus \$2.00 for

each additional issue in which the article appears).

And remember The WIA is always on the lookout for technical and general interest articles from members. Have you submitted your contribution lately? For further details on how to write an article about your latest construction project, or amateur radio experience, for your magazine, please refer to the August 1992 issue of *Amateur Radio* (page 18), or contact the editors at the Federal Office of the WIA.

CATEGORY	TITLE	AUTHOR	ISSUE	PAGE
Administration	Departure of Bill Roper as General Manager & Secretary	Kevin Olds VK1OK	Sep	03
	Federal 1992 Annual Reports	WIA News	Apr	48
	Federal Convention	WIA News	Jun	16
	New Federal Secretary and Office Manager	WIA News	Sep	22
	October Board Meeting		Jan	07
	October Board Meeting	WIA News	Dec	51
	Policy Update: Affiliated Organisations, TPT, Intruder Watch	WIA News	Mar	05
	Policy Update: QSL Bureaux, Novice Licensing, BBS Guidelines	WIA News	Feb	05
	Policy Updates: Education; Conc Membership; Public Relations	WIA News	May	30
	Policy Updates: Gentlemen's Agreement Narrow Band Modes; ATV	WIA News	Apr	18
	Radiocommunications Act 1992 & "Judicious Rex"	George Brzostowski VK1GB	Aug	06
	Spectrum Management Agency Startup	WIA News	Jul	21
	Spectrum Management Matters	WIA News	Apr	17
	Stolen Equipment Register		Feb	48
	Videotape Library		Feb	44
	WIA Accredited Examiners		Feb	50
Antennas, Towers, Lines, Etc	A Small Antenna with BIG Results	Jim W Duggan VK4BOK	Sep	10
	A Z Match Tuner — Two Coil Windings But No Switching	Lloyd Butler VK5BR	Sep	07
	Aerial Wires and Spreaders	Robert R McGregor VK3XZ	Mar	16
	An Approach to Weatherproofing RF Connectors	Richard Cortis VK2XRC	Jun	31
	Antenna Impedance Measurement by Substitution	Neville Chivers VK2YO	Sep	12
	AR Single Coil Z Match	Random Radiators	Feb	13
	Balcony Antennas (etc)	Random Radiators	Dec	14
	Coaxial Cable Traps — In Search of the Perfect Antenna	Paul Duff VK2GUT	Oct	18
	Down to Earth Antenna	Robert R McGregor VK3XZ	May	24
	Ferrite Choke Type Baluns	The Late Clive Cooke VK4CC	Jul	08
	G5RV Antenna (Technical Correspondence)	Lindsay Lawless VK3ANJ	Sep	14
	Getting a Multiband Vertical to Go! (Part 1)	D Wescombe-Down VK4CMY/VK5HP	Dec	08
	HF Antennas for All Locations (Book Review)	Ron Fisher VK3OM	Sep	16
	High Performance 20 m Wire Antenna	Adrian Fell VK2DZF	Sep	04
	Metal Boom Helical Antenna	Technical Abstracts	Apr	15
	Mini-Flat-Top for Eighty	Random Radiators	Oct	25
	Monitoring RF Currents	Robert R McGregor VK3XZ	May	23
	Simply, An Ali Band Vertical	George E Thatcher VK2EHN	Sep	09
	Slinky Spiral Compact Antenna	Random Radiators	Oct	26
	Tests on a Z Match Tuner 1.8 — 14 MHz	Random Radiators (VK5BR)	Aug	09
	The Adcock Finder for 10 Metres	Ian Berwick VK3ALZ	Mar	17
	The AR Single Coil Z Match	Lloyd Butler VK5BR	Apr	12
	The AR Single Coil Z Match (Part 2)	Lloyd Butler VK5BR	May	14
	The Choke Balun	Random Radiators	May	26
	The MFJ-945D Mobile Antenna Tuner (review)	Ron Fisher VK3OM	Mar	11
	Try This — Info on Pulley	Lindsay Collins VK5GZ	Feb	21
	Try this — Info on Rotators	Lindsay Collins VK5GZ	Jan	21
	Tuned Feeders — Who Uses Them?	Robert R McGregor VK3XZ	Feb	21
	VHF/UHF Antenna Combiner for Mobile Use	Ian Keenan VK3AYK	Mar	23
Awards				
	ALARA Award		Nov	31
	Amateur Radio Awards 1992		Jan	03

CATEGORY	TITLE	AUTHOR	ISSUE	PAGE
Grid Square Awards			Dec	25
IARU Region 3 Award			Jul	39
NZART Awards			Jul	39
Redcliffe Awards			Oct	34
Ron Wilkinson Award to VK2ZAB			Apr	09
Swedish Awards			Mar	45
Tassie Trout Award			Dec	26
WIA DXCC Award (Rules and Listings)			Feb	46
WIA DXCC Listings (01/07/93)			Aug	33
YL awards (world wide)			Nov	31
Book Reviews				
70 Years of Radio Tubes and Valves		Colin McKinnon VK2DYM	Sep	55
ARRL Spread Spectrum Sourcebook		Evan Jarman VK3ANI	Mar	53
HF Antennas for All Locations		Ron Fisher VK3OM	Sep	16
History of International Broadcasting (IEE)		Bill Rice VK3ABP	Aug	27
NOS Intro		A Packet of Packet	Oct	44
Oscilloscopes — Selecting & Restoring a Classic		Evan Jarman VK3ANI	Nov	24
Practical Filter Design		John Robinson VK2XY	Dec	22
The Morse Code for Radio Amateurs		Evan Jarman VK3ANI	Jan	18
The VHF/UHF DX Book		Bob Tait VK3UI	Jun	36
Your RTTY/AMTOR Companion (ARRL)		WIA News	Apr	36
Computers and Programs				
AsiaNet IBM Library		Les Kinch VK28BD	Jan	32
Geostationary Satellite Look Angles		AMSAT Australia	Jun	34
Program for Coax Traps		John Fullagar VK3AVY	Dec	36
SmartLog Logging Program (software review)		Evan Jarman VK3ANI	Jul	13
Contests				
1992 VK/ZL/O Contest Results			Nov	34
1993 Australasian Sprints Results			Nov	34
ALARA Contest (Mixed) Rules			Oct	38
ARRL DX Contest 1993 Rules			Feb	28
Australasian 80 M Sprint Rules			Jun	46
Commonwealth Contest 1992 Results			Jan	41
General Rules HF Contests			Apr	48
John Moyle Field Day 1993 Rules			Feb	27
John Moyle Field Day Contest 1993 Results			Aug	36
NZART 80 M Memorial Rules			Jun	46
Remembrance Day Contest 1993 Opening Address			Sep	13
Remembrance Day Contest 1993 Results			Dec	32
Remembrance Day Contest 1993 Rules			Jul	48
Ross Hull Memorial Contest 1992-3 Results			Mar	43
Ross Hull Memorial Contest 1993-94 Rules			Dec	30
RSGB Commonwealth Contest 1993 Rules			Feb	29
Sunshine State Jack Fyles Memorial Rules			Jun	47
VHF-UHF Field Day 1993 Rules			Jan	31
VHF/UHF Field Day 1993 Results			Apr	47
VHF/UHF Field Day Contest 1994 Rules			Dec	31
VK-ZL-Oceania Contest Rules 1993			Sep	35
VK/ZL/Oceania 1992 Results			Mar	43
West Australian 80 m Rules			Jul	47
WIA VK Novice 1993 Rules			May	43
WIA VK Novice Contest 1993 Results			Oct	39
Digital Communications				
A Simple 300/1200 Baud Packet Radio Modem		Lou Destefano VK3AQZ	Nov	04
Build a Packet TNC		Colin McKinnon VK2DYM	Mar	14
Digicom with an AAPRA Modem		Murray Burford VK5ZQ	Nov	26
DSP4 Modem		A Packet of Packet	May	33
Mini Packet Modem		Eric Van de Weyer VK2KUR	Jul	03
Opening a Packet of Worms		Lou Destefano VK3AQZ	Jul	20
PACTOR — The Magic Successor to RTTY		Colin Richards 9M2CR	Mar	08
Remote TNC Operation		Gil Sones VK3AUJ	Mar	25
Satellite Gateways		Ron S Graham VK4BRG	Mar	22
The Baycom Packet Modem (Product Review)		Gil Sones VK3AUJ	Jan	11
The PacComm PACTOR Controller (Equipment Review)		Bruce Kendall VK3WL	Apr	10
The Rose Network		A Packet of Packet	Aug	45

CATEGORY	TITLE	AUTHOR	ISSUE	PAGE
	Upgrades to the PK-232 Multi-Mode Data Controller EMC	Colin McKinnon VK2DYM	Jun	09
	Amateur Radio & Electromagnetic Compatibility (Part 1)	Hans Ruckert VK2AOU	Jan	12
	Amateur Radio & Electromagnetic Compatibility (Part 2)	Hans Ruckert VK2AOU	Feb	09
	An Approach to Television Interference Control	Richard Cortis VK2XRC	Jan	25
	EMC Problems (equipment statistics)	RSGB	Jul	34
	EMC the Other Way Around!	Hans Ruckert VK2AOU	Dec	37
	Evasive Noise Blanking	Technical Abstracts	Dec	19
	Interference Reduction	Technical Abstracts	Feb	18
	More on Interference Cancelling, and a New Circuit	Lloyd Butler VK5BR	Jan	19
	Pager Interference — Problems and Approaches	Ron Henderson VK1RH	Feb	12
	Pagers	Repeater Link	Oct	46
	Perth Pagers	Repeater Link	Mar	47
	Powerline Interference Under Scrutiny	WIA News	Sep	12
	Equipment Reviews			
	ICOM IC R-72 All Mode HF Communications Receiver	Ron Fisher VK3OM	May	11
	ICOM IC-737 All Mode HF Transceiver	Ron Fisher VK3OM	Aug	15
	The Baycom Packet Modem	Gil Sones VK3AUI	Jan	11
	The ICOM IC-R7100 VHF/UHF Receiver	Paul McMahon VK3DIP	Feb	16
	The Kenwood TS-50S All Mode HF Mobile Transceiver	Ron Fisher VK3OM	Jun	17
	The MFJ-247 SWR Analyser and LCD Frequency Counter	Ron Fisher VK3OM	Jan	17
	The MFJ-945D Mobile Antenna Tuner	Ron Fisher VK3OM	Mar	11
	The PacComm PacTOR Controller	Bruce Kendall VK3WL	Apr	10
	Yaesu FRG-100 HF Communications Receiver	Ron Fisher VK3OM	Oct	21
	History			
	Golden Days of Radio	Arthur J Brown VK2IK	Jul	51
	Goldilox — A Grim(m) Fairy Tale	Rodney Champness VK3UG	Sep	23
	Historic UK-VK Contact Celebrated	WIA News	Nov	21
	History of International Broadcasting (Book Review)	Bill Rice VK3ABP	Aug	27
	Hurricane INIKI — Help from Australia		Mar	26
	Navy — Senior Service Part 2	Ken Matchett VK3TL	Apr	40
	Teaching Transformers Long Ago	John Allan VK5UL	Nov	25
	The Origin of "HAMS"	Bill Yates VK3SB	May	53
	The Story of Kingsley Radio Pty Ltd, 1938-45, Part 1	George Neilson VK3TES	Jun	21
	The Story of Kingsley Radio Pty Ltd, 1938-45, Part 2	George Neilson VK3TES	Jul	16
	The Story of Kingsley Radio Pty Ltd, 1938-45, Part 3	George Neilson VK3TES	Aug	22
	Miscellaneous Technical			
	123 Hz Access Tone for the Dick Smith 430 MHz Explorer	A M Crewther VK3SM	Mar	26
	A 40 W Switched Mode Power Supply	K W Gooley VK5BGZ	Oct	12
	A Different Type of AGC Circuit	Jon Lindstad VK2WF	Nov	24
	Amateur Radio Equipment Prices	Gil Sones VK3AUI	Apr	20
	Amateur Radio Security (Try This)	Steve J Mahony VK5AIM	Mar	15
	An Effective Junk Box Crowbar	Geoff Switzer VK2SR	Nov	15
	Doppler Direction Finding	Technical Abstracts	May	32
	Dual Band Mobile Roundup	Technical Abstracts	Sep	15
	HFC Regulated Variable Voltage Power Supply	Drew Diamond VK3XU	May	19
	Improving Selectivity by Pre-Selector	Robert R McGregor VK3XZ	Apr	19
	Interference Reduction	Technical Abstracts	Feb	18
	Iron On PCB Resist	Technical Abstracts	Nov	17
	Just for the Record (New 10 GHz Record)	Peter Ford VK3TAF	Jan	08
	Make Your Own Low Loss Capacitors	Graham Thornton VK3IY	Sep	25
	Making Simple Circuit Boards	Drew Diamond VK3XU	Mar	13
	Roger Beep	Technical Abstracts	Dec	21
	Salvaging Surplus Components	Technical Abstracts	Aug	21
	Speaker and Headphones Combiner (Try This)	George Cranby VK3GI	Mar	16
	SSB and Audio Quality	Jon Lindstad VK2WF	Nov	12
	SSB Phasing Techniques for Receiving	Richard Hosking VK6BRO	Jun	27
	Test Load for the 20 Amp PSU	Lloyd Butler VK5BR	Jan	22
	Try This — Make Your Own Polystyrene Solution	Graham Thornton VK3IY	Apr	20
	Unwanted Coupling of Stray Signal or Noise	Lloyd Butler VK5BR	Jun	12
	Valves versus Solid State	Technical Abstracts	Sep	15
	Operating			
	Amateur Radio and the Transcontinental Balloon Crossing	Roger Harrison VK2ZTB	Aug	03
	Amateur Radio at the 1993 Rotary International Convention	Norm Dench VK3DNE	Sep	21
	Field Day Preparation	Chris Davis VK1DO	Dec	10

CATEGORY	TITLE	AUTHOR	ISSUE	PAGE
How to Hit the Australian Repeaters — With 28,000 Tons!		Geoff Green VK6XB/V6SDA	Aug	13
Just for the Record (New 10 GHz Record)		Peter Ford VK3TAF	Jan	08
Lord Howe Island VK9LD (18-24 Nov 1992)		Bill Horner VK4CRR	Jul	18
Pioneer Trek by Horse		J P Mahoney VK4JON	Nov	23
SEANET to Come of Age in Bangladesh		Thomas E King VK2ATJ	Sep	46
Spies — Radio Branch and Neighbours		Adrian Felli VK2DZF	Jun	06
The Day We Crossed the Tasman on Long Wave		John Adcock VK3ACA	Apr	07
The Rooftop Run		Bob Tait VK3UI	Nov	19
The Ultimate Way of Ridding the Bands of Intruders		Norm Schroeder VK6NS	Jan	30
Working Melbourne from Canberra on 1296 MHz		VK1DO & VK1CO	Mar	20
People				
Austin Condon VK5WO		Awards	Jul	39
Bill Hempel VK4LC		Awards	Mar	45
Cosmonaut Manarov Visits Melbourne		Bill Magnusson VK3JT	Feb	07
Departure of Bill Roper as General Manager & Secretary		Kevin Olds VK1OK	Sep	03
Gwen Tilson VK3DYL		Awards	Nov	32
Ken Jewell VK3AKK		Awards	Apr	36
Late WIA President — an Obituary		Rob Apathy VK1KRA	Jun	04
Luke Gow Follows Family Tradition		Don Rannard VK2LDR	Sep	23
New Federal Secretary and Office Manager		WIA News	Sep	22
Norm VK6NS			Jan	30
Profile of a President (Kevin Olds VK1OK)			Jul	07
QRZ! This is "Ed" (VK6AJR)		Mal Johnson VK6LC	Mar	10
Robin Lyon VK6LK		Awards	Feb	59
Stuart Millock VK5MS		Awards	Jan	38
Places				
A Postcard from Mount Gambier		Ivan Huser VK5QV	May	08
Christmas Island — VK9		How's DX	Dec	41
Hamming in Texas		Repeater Link	Sep	44
Kingman Reef		How's DX	Sep	39
Lord Howe Island — VK9LD (18-24 Nov 1992)		Bill Horner VK4CRR	Jul	18
Nepal — 9N1		How's DX	Dec	41
The Isle of Man		Ken Matchett VK3TL	Jul	44
Propagation				
Meteor Burst — An Introduction		Ross Danneker VK4ZFD	Nov	20
Receivers				
A Different Type of AGC Circuit		Jon Lindstad VK2WF	Nov	24
A Low-Noise Pre-Amp for the ICOM IC-275A/H		Albert Gnaccarini VK3TU	Sep	17
Bandwidth Limiting LF Up Converter for Around 200 kHz		Lloyd Butler VK5BR	Dec	04
Broad Band RF Amplifiers		Technical Correspondence	Jun	45
Enhanced Receiver Performance of the FT-411E		Lew Whitbourn VK2ZIP	Jul	10
FM828 Receiver Front End		Repeater Link	Dec	39
Improving Selectivity by Pre-Selector		Robert R McGregor VK3XZ	Apr	19
SSB Phasing Techniques for Receiving		Richard Hosking VK6BRO	Jun	27
The ICOM IC-R7100 VHF/UHF Receiver (Equipment Review)		Paul McMahon VK3DIP	Feb	16
Valves versus Solid State		Technical Abstracts	Sep	15
VK3MZ Super Sniffer		Ian Stirling VK3MZ	May	04
Regulations				
Latest on New Amateur Licence Conditions		Spectrum Management Agency	Dec	09
New Licence Conditions Progress		WIA News	Jan	04
Type Approval Not Required		WIA News	Jun	11
Repeaters and Beacons				
FM828 Receiver Front End		Repeater Link	Dec	39
Low Voltage Power Switch		Repeater Link	Feb	36
Simple Ident Unit		Repeater Link	Apr	34
Simple In-Band Link Controller		Repeater Link	Jan	49
Sites, Antennas, Equipment		Repeater Link	Jul	42
Voice Repeater Control Unit		R S Graham VK4BRG	Oct	10
Test Equipment				
Antenna Impedance Measurement by Substitution		Neville Chivers VK2YO	Sep	12
Monitoring RF Currents		Robert R McGregor VK3XZ	May	23
Oscilloscopes — Selecting, Restoring a Classic (Book review)		Evan Jarman VK3ANI	Nov	24
Quickie Transistor Checker		Brian J Field VK6BQN	Aug	26
RF Ammeter, Absorption "Sniffers"		EMC Report	Jul	33
RF Power Meter Load		Drew Diamond VK3XU	Apr	03

DICK SMITH ELECTRONICS



Great technology from

NEW



FT-5200 2m/70cm Mobile Transceiver

The FT-5200 carries the latest innovations in compact cross-band full-duplex and detachable front-panel design for brilliant mobile performance. It has 32 tuneable memories, a built-in antenna duplexer, dual full-frequency LCD screen (with signal strength/power output bargraphs for each band), 8-level automatic display/button lighting dimmer and dual external speaker jacks (one for each band). A thermally-activated fan allows up to 50 watts output on the 2-meter band and 35 watts on the 70cm band. What's more, scanning features include programmable scan limits, selectable scan resume modes, memory skip, priority monitoring and one-touch recall CALL channels. In addition, 6 user-selectable channel steps are provided and a FRC-4 DTMF paging/selfcall option lets you program a three-digit ID code so you can be paged by other transceivers, or page up to 5 other stations yourself. An optional YSK-1 remote monitoring kit lets you relocate the main rig (under the front seat, for example) and mount the control panel on the dash. The FT-5200 comes with hand-mic, mobile mounting bracket and DC power lead.

Specifications

General

Frequency Range
Channel Steps
Current Consumption
Transmit

144-148MHz, 430-450MHz
5, 10, 12.5, 15, 20 & 25kHz
Receive: 800mA
2m, 11.5/4.0A (high/low)
70cm, 9.0/3.5A (high/low)
140 x 40 x 155mm (w/o knobs)

Dimensions

Receiver
Intermediate Frequencies

2m, 17.7MHz & 455kHz,
70cm, 22.5MHz & 455kHz
Better than 0.158uV (12dB SINAD)
Better than 85dB
3.0W into 4 ohms @ 5% THD

Sensitivity

Image Rejection
Maximum AF Output
Transmitter
RF Output Power

2m - 50/5W (high/low)
70cm - 35/5W (high/low)

Cat D-3310

2 Year Warranty

\$1499



FT-990 H.F. All-Mode Base Transceiver

The FT-990 offers many of the features of the legendary FT-1000 in a more compact and economical base-station package. Its excellent front-panel layout, together with clear labelling, a large backlit meter and an uncluttered digital display provides very straight-forward operation. The receiver uses a wide dynamic range front-end circuit and two DDS's to provide a very low noise level and excellent sensitivity over the 100kHz to 30MHz range. Transmitter output is 100W on all HF Amateur bands (SSB, CW, FM), with high duty cycle transmissions allowed. The internal auto antenna tuner and rebuilt AC power supply are standard features, while the customizable RF speech processor

and Switched Capacitance Audio filtering facilities are unique to the FT-990. Other features include IF Shift and IF Notch filters, IF bandwidth selection, 90 memories and one-touch band selection. Cat D-3260.

2 Year Warranty

\$3995

BONUS

**Deluxe desk microphone (MD-1),
valued at \$199**

*Offer extended to 31st January 1994

Deluxe Handheld FM Transceivers

The superb FT-415 and FT-815 hand-held FM transceivers are compact and rugged with dual-microprocessor control, a range of new automatic battery-saving (ABS) features and power output which is selectable in up to 4 levels at 12V. A die-cast rear case, polycarbonate front panel and battery case ensure reliability in the most demanding of environments. The display and keypad can both be backlit, and the top panel DC supply jack can be used to power the transceiver and charge a NiCad battery pack. A 36mm speaker provides low distortion audio while in-built VOX circuitry is included for use with the optional YH-2 headset. Advanced features include two independent VFOs, keypad frequency entry, 41 tunable memories, instant recall CALL channel and various scanning modes. The FT-415 has Automatic Repeater Shift (Australian version) which can be activated whenever you tune to a standard repeater sub-band, plus extended receive coverage. Both have DTMF based selective calling and paging facilities and come with a high-capacity 7.2V, 1000mAh NiCad battery, belt-clip, carry case and approved AC charger.

FT-415 Cat D-3810

\$599

FT-815 Cat D-3615

\$699 (limited stocks)

Specifications:

Frequency range	FT-415 144-148MHz (140-174MHz extended receive) FT-815 430-450MHz 55 x 145 x 33mm
Size	
Transmitter	
Power output	FT-415 2.0W (at 7.2V) FT-815 1.5W 5.0W at 12V
Both models	
Receiver	
Sensitivity	better than 0.15µV, (12dB SINAD) both models, Ham bands only



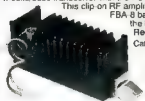
BONUS

Purchase any 2m or 70cm handheld during January, and we'll give you a 25% discount on any matching speaker/mic or NiCad battery pack purchased at the same time. Not applicable to dualband or portable transceivers.



FL-2025 Amp

Turn your FT 290R into a powerful 25-watt mobile/base transceiver with the FL 2025 amplifier. This clip-on RF amplifier replaces the FBA 8 battery holder on the FT 290R. Requires 13.8V DC. Cat D-2683



\$299

FT-290R II 2M Multi-Mode Transceiver

The multi-mode, transportable transceiver for serious field or mobile operations! The FT 290R II features FM, SSB (USB/LSB), and CW operation with 2.5W output, two VFOs and 10 memories. Selectable tuning rates are provided for SSB/CW and FM while mode-specific features such as noise blanker and clarifier control for SSB/CW plus a full set of functions for FM repeater operation make this unit very simple to operate. Comes with an FBA 8 battery holder for nine "C" size standard or NiCad batteries (not supplied), antenna and hand-held microphone.

Cat D-2875

2 Year Warranty

\$999

FT-736R VHF/UHF Base-Station Transceiver

The FT-736R is Yaesu's best VHF/UHF transceiver! Designed for the serious VHF/UHF operator, this high-performance transceiver provides 25W output (SSB, CW, FM) on the 2 metre and 70cm (430-450MHz) bands and can easily be expanded to cover the 6 metre and 23cm (1240-1300MHz) bands as required. Features include keyboard frequency entry, 115 memories, 2 independent VFOs per band, separate FM Channel knob with selectable channels steps, 2 full duplex VFOs for Satellite operation, IF shift and Notch filters, noise blanker, all-mode VOX, SSB speech processor, GaAs FET front ends (430, 1200MHz) high stability TCXO reference oscillator & an inbuilt AC power supply. Microphone optional extra.

Cat D-2920

2 Year warranty



HURRY! BEAT THE PRICE RISE! \$2995

Great technology from



FT-911 23cm Handheld

The compact FT-911 23cm handheld provides great performance, long battery life, and rugged construction at an incredibly low Dick Smith Electronics price. If you've been thinking of getting a 23cm handheld, now's the time to do it.

The FT 911 provides 1240-1300MHz coverage, 2 VFO's, keypad frequency entry, 7-digit LCD screen, 1000 mA/H NiCad pack, carry case, belt-clip and approved AC charger

Cat D-3380

Only \$599
Save \$200
2 Year Warranty

FT-912R 23cm Mobile



Great value! The FT-912R is an easy-to-use, solidly built transceiver that provides 10 watts output on the 23cm band (1240 - 1300MHz), and comes complete with mobile mounting hardware and hand microphone. Features include 21 memories, selectable tuning steps, inbuilt CTCSS encode, various scanning modes, and a large backlit LCD screen. At this great price, you've got no excuse for not using the vast 23cm band

Cat D-3390

2 Year Warranty

Save \$200 \$799

FT-2400H Rugged 2m 50W Mobile



Our toughest 2m mobile! The FT-2400H is the first 2m amateur rig to meet the USA MIL-STD 810C shock and vibration requirements, so you know you're getting a transceiver that will provide really reliable long-term operation. It's one-piece diecast chassis allows 50W output without forced air cooling, while the large backlit LCD screen and major controls are well spaced for easy access. A customised microprocessor also provides selectable Auto Repeater Shift (Australian band plan) plus extended 140-174MHz receiver coverage with a track tuned front end and dual FET mixer for improved receiver performance. CTCSS encode, 31 tunable memories, scanning modes, and an MH-25 hand microphone are also provided.

Cat D 3630

2 Year Warranty

\$699

PHONE, FAX & MAILORDER SERVICE & YAESU BROCHURE HOTLINE

Outside Sydney (FREE Call) 008 22 6610
Sydney and Enquiries - (02) 888 2105

Fax: (02) 805 1986 or write to

Dick Smith Electronics, Mail Orders, Reply Paid 160
PO Box 321 NORTH RYDE NSW 2113

All major Credit Cards accepted. Q/Nite Courier Available

Yaesu stocks and some antennas not held at all stores, please contact your local store for availability, or phone 008 22 6610



B 1640

NSW - Albury 21 8396 - Bankstown Square 707 4558 - Blacktown 671 7722 - Bondi 387 1444 - Brookvale 905 0441 - Burwood 744 7299 - Campbelltown 27 2199 - Chatswood Chase 411 1955 - Chittora 642 8922 - Gore Hill 439 5311 - Gosford 25 0235 - Hornsby 477 6633 - Hurstville 580 8622 - Kotara 56 2092 - Liverpool 600 9688 - Maitland 33 7866 - Mt City Centre 221 0000 - Miranda 525 2722 - Newcastle 61 1896 - North Ryde 878 3855 - North Sydney (Greenwood Plaza) 964 9487 - Orange 618 400 - Parramatta 689 2186 - Penrith 32 3400 - Railway Square 211 3777 - Sydney City 267 9111 - Taremount 66 1711 - Wollongong 28 3800 ACT - Belconnen (06) 253 1785 - Fishwick 260 4944 VIC - Ballarat 31 5433 - Bendigo 43 0388 - Box Hill 890 0699 - Coburg 363 4455 - Dandenong 794 5377 - East Brighton 592 2366 - Essendon 379 7444 - Frankston 783 8144 - Geelong 232 7111 - Highpoint 318 5300 - Melbourne City 389 5123 - Elizabeth St 325 6088 & 246 Bourke St 529 0396 - Richmond 428 1614 - Ringwood 879 5338 - Springvale 547 0522 QLD - Booval 282 6200 - Brisbane City 229 9377 - Buranda 391 6233 - Cairns 311 515 - Capalaba 245 2870 - Chermside 359 6255 - Maroochydore 791 800 - Mermaid Beach 785 600 - Rockhampton 27 9644 - Southport 32 9033 - Toowoomba 36 4300 - Townsville 72 5722 - Underwood 341 0844 SA - Adelaide City 232 1200 - Elizabeth 255 6099 - Enfield 260 6088 - St Marys 277 8977 - Westlakes 235 1244 WA - Cannington 451 9666 - Fremantle 335 9733 - Perth City 481 3261 - Midland 250 1460 - Northbridge 328 6944 TAS - Glenorchy 732 178 - Hobart 31 0800 - Launceston 344 555 NT - Darwin 81 1977

STORES ACROSS AUSTRALIA AND NEW ZEALAND

* STORES IN RED ARE OPEN SUNDAYS.

CATEGORY	TITLE	AUTHOR	ISSUE	PAGE
The MFJ-247 SWR Analyser and LCD Frequency Counter (Review)	Two Metre & 70 cm Wavemeter	Ron Fisher VK3OM	Jan	17
Transceivers		Technical Abstracts	Dec	19
"TCF" Sideband/CW Transceiver for 80 Metres		Drew Diamond VK3XU	Oct	04
123 Hz Access Tone for the Dick Smith 430 MHz Explorer		A M Crewther VK3SM	Mar	26
A Low Noise Pre-Amp for the ICOM IC-275A/H		Albert Gnaccarini VK3TU	Sep	17
AWA 25M — Some Further Thoughts		Ian Keenan VK3AYK	Jun	33
Enhanced Receiver Performance of the FT-411E		Lew Whitbourn VK2ZIP	Jul	10
ICOM IC-737 All Mode HF Transceiver (Review)		Ron Fisher VK3OM	Aug	15
Modifying the Philips FM-828 to Auto Scan		Ron Graham VK4BRG	Apr	21
Repeater Reverse Switching for the Dick Smith Explorer		VK3SM & VK3XIS	Nov	16
The DSE Commander Mk1 "Thoughts and Experiences"		Dave Kent VK2BJI	Jan	23
The Kenwood TS-50S All Mode HF Mobile Transceiver (Review)		Ron Fisher VK3OM	Jun	17
ZS5L QRP Transceiver		Technical Abstracts	Dec	21
Transmitters				
"Simplex" Sideband Transmitter for 3.580 MHz		Drew Diamond VK3XU	Jun	24
160 Metre AM Transmitter		Technical Abstracts	Aug	20
SSB and Audio Quality		Jon Lindstad VK2WF	Nov	24
WU/EN				
Report on WICEN/NTES Exercise		Trevor Connell VK8CO	Sep	45

ALARA

Robyn Gladwin VK3ENX*

YL Contests

There are two DX contests early in the New Year which may interest radio amateurs with time on their hands over the holidays.

MEET THE NOVICES AND TECHNICIANS DAY, sponsored by YLRL, the United States YL Association, will be held on Saturday, 15 January 1994 from 1500 to 0500 UTC. All licensed women operators throughout the world are invited to participate. Only frequencies in the HF bands that are open to novices and technicians may be used. A station may be worked once for credit. Net contacts do not count. Frequencies are CW: 21.120-21.150 28.150-28.185 SSB: 28.300-28.500 MHz.

Scoring is as follows:- 3 points for each YL novice or technician worked; 2 points for each YL general or advanced class worked, 1 point for each YL extra class worked. Total score = total number of points. Mail logs to Vice President YLRL, Carla Watson W06X, 473 Palo Verde Drive, Sunnyvale CA94086, USA. Logs must be postmarked no later than 30 days after the contest and must be signed by the operator.

The second contest will be conducted by the British YL association. It is the **ELEVENTH BYLARA CONTEST**, to be held on two dates:- Thursday, 10 February from 1900 to 2200 UTC and Saturday, 12 February from 1000 to 1300 UTC. Frequencies are 14 250-14 280, 21 350-21 400, 28 350-28 410 and 28.650-28.700. Scoring is as follows:- 5 points per YL BYLARA member; 3 points

per YL non-member; 2 points per OM Associate member; 1 point per other OM contact. **EACH DAY IS A SEPARATE ENTRY TOTAL.** Logs must be received by 4 April 1994. They should be sent to Eila Tugwell G0FIP, 67 Upper Kingston Lane, Shoreham-By-Sea, Sussex BN43 6TG, England.

ALARA has many sponsored members in the US and the UK and it would be great if Australian YLs could support these contests.

YLs on the Air

This is the title of the YL column which appears in the US radio magazine "World Radio". The articles are written by Kay Eymann WA0WOF. In her August 1992 column she published a poem written by Raymond Cotton W1BTY, almost 40 years ago. I hope that OMs who read the poem may be inspired to encourage their partners to join the wonderful hobby of amateur radio.

My Cat

The final's plates may seem to drip
From running too far off the dip;
The modulator makes with chatter
For loading is a minor matter

The bath's hung full with lingere
That somehow wasn't put away;
I don't ask why, 'cause I can guess
This was her day as NCS.

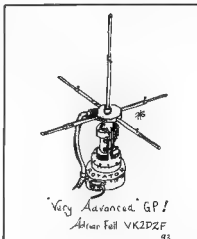
My wilted shirt will have to do
Me, for another day or so.
"I would have fixed one for you, pet,
But today the YL ham club met."

Tonight I dined on beans and bread,
Did the dishes, made the bed;
She'd taken off just after dawn
To get the CD station on.

But when I spend a wad of cash
On mobile gear and such like trash
That might have bought an evening dress
Or a new coat — sure, nothing less
She smiles and strokes her VFO
And says in voice both sweet and low,
"Its okay, dear, the old things will do."
God bless her soul — she means it, too!

And when I sit up till the dawn,
When the annual SS is on,
She never scolds or spoils my plans
Because the good gal understands.
So I've no cause the day to rue
I taught her the code and theory, too.
We now see all things eye to eye;
A lovely gal, a lucky guy.

*PO Box 438 Chelsea 3196



"Very Advanced" GP!
Adrian Fells VK2DZF

93

AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator

Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WJ

AMSAT Australia net:

Control station VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz (Usually during summer).

Secondary 3.885 MHz (Usually during winter).

Frequencies +/- 5 kHz for QRM.
AMSAT Australia newsletter and soft-ware service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$25 for Australia, \$30 for New Zealand and \$35 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Welcome in the New Year

By now you will all have welcomed in the new year, hopefully in a way beneficial to your amateur radio satellite activities. I'd like to be able to give you a run-down of our efforts at Mt Skene but that'll have to wait until next month as this is being written in November due to the deadline.

Moon-bounce Tests

I wonder if anyone else heard the signals from Algoquin via EME Ray VK3YYP and I sat up until the wee small hours and heard the 70 cm signals on the Saturday night. However, despite twice the antenna gain on 1296 MHz, we heard nothing on the next night.

APRS

I'm still collecting info on this subject. I have been offered a copy of the program by our local sypop who found it in his BBS files so, hopefully, I'll have more to report next month.

"S" mode

I had my first QSO on OSCAR-13 mode "S" the other day. Predictably a JA. Good signals from a home brew converter (no pre-amp) and a copy of James Miller's "minimum helix" as described in various magazines. The system works well and I'm looking forward to using it in a (very) portable situation. The eclipse season means that squint angles are going to be a bit high for a month or so but, even so, signals are more than adequate. Pity that the "S" mode schedule is so short on MA counts. Next step is a pre-amp at the feed point and maybe a longer helix (To balance the 70 cm beam -Hi!).

Current Amateur Radio Satellite Status

As promised, here is a list, to the best of my knowledge, of the frequencies of all the currently operational amateur radio satellites. Please do not hesitate to make me aware of any inaccuracies or omissions.

SATELLITE	UPLINK (MHz)	DOWNLINK (MHz)	SATELLITE	UPLINK (MHz)	DOWNLINK (MHz)
Oscar 10 (AO-10)					
General Beacon (Carrier only)		145.810	Mode A (SSB,CW-Inverting)	145.91-145.95	29.410-29.450
Engineering Beacon (irregular and garbled)		145.987	Robot Mode A (CW)	145.83	29.407 or 29.453
Mode B (SSB,CW-Inverting)	435.090-435.180	145.825-145.975	Beacon/Robot (CW)		29.407
Note: AO-10 is out of control but still provides good communications via mode "B" when the batteries are charged by the solar cells.			Beacon/Robot (CW)		29.453
Oscar 11 (UoSAT-2 (UO-11))			Mode K (SSB,CW-Inverting)	21.210-21.250	29.410-29.450
Beacon (1200 AFSK, FM)		145.826	Robot Mode K (CW)	21.130	29.407 or 29.453
Beacon (1200 AFSK, FM)		435.025	Beacon/Robot (CW)		145.907
Beacon (1200 AFSK, FM)		2401.500	Beacon/Robot (CW)		145.953
Note: UO-11 has recently returned to service after a short shut-down during which time new soft-ware was uploaded. It is currently being reconfigured by Surrey.			Mode T (SSB,CW-Inverting)	21.210-21.250	145.91-145.95
Radio Sputnik 12 (RS-12)			Robot Mode T (CW)	21.130	145.907 or 145.953
Platform = COSMOS 1861			Radio Sputnik 12 (RS-12)		
Beacon/Robot (CW)		29.357	Beacon/Robot (CW)		29.408
Beacon/Robot (CW)		29.403	Beacon/Robot (CW)		29.454
Mode A (SSB, CW-Inverting)	145.86-145.90	29.360-29.400	Mode A (SSB,CW-Inverting)	145.91-145.95	29.410-29.450
Robot Mode A (CW)	145.82	29.357 or 29.403	Mode A (CW)	145.831/840	29.408 or 29.454
Beacon/Robot (CW)		29.357	Beacon/Robot (CW)		29.408
Beacon/Robot (CW)		29.403	Beacon/Robot (CW)		29.454
Mode K (SSB,CW-Inverting)	21.160-21.200	29.360-29.400	Mode K (SSB,CW-Inverting)	21.210-21.250	29.410-29.450
Robot Mode K (CW)	21.120	29.357 or 29.403	Mode K (CW)	21.120	29.408 or 29.454
Beacon/Robot (CW)		145.857	Beacon/Robot (CW)		145.912
Beacon/Robot (CW)		145.903	Beacon/Robot (CW)		145.959
Mode T (SSB,CW-Inverting)	21.160-21.200	145.86-145.90	Mode T (SSB,CW-Inverting)	21.210-21.250	145.910-145.950
Robot Mode T (CW)	21.120	145.857 or 145.903	Mode T (CW)	21.120	145.912 or 145.959
Radio Sputnik 11 (RS-11)			Radio Sputnik 13 (RS-13)		
Platform COSMOS 1861			Beacon/Robot (CW)		29.458
Beacon/Robot (CW)		29.407	Beacon/Robot (CW)		29.504
Beacon/Robot (CW)		29.453	Mode A (SSB,CW-Inverting)	145.96-146.00	29.450-29.500
			Mode A (CW)	145.84	29.456 or 29.504
			Beacon/Robot (CW)		29.458
			Beacon/Robot (CW)		29.504

SATELLITE	UPLINK (MHz)	DOWNLINK (MHz)	SATELLITE	UPLINK (MHz)	DOWNLINK (MHz)
Mode K (SSB,CW-Inverting)	21.260-21.300	29.460-29.500	Mode J	144.30-144.50	
Mode K (CW)	21.138	29.458 or 29.504	ATV (TV/AM)	1265.000	
Beacon/Robot (CW)		145.862	AMSAT-OSCAR-19 (LO-19) (Lusat)		
Beacon/Robot (CW)		145.908	(1200 AFSK, FM-SSB)	145.84/86/88/90	437.15355 or 437.1258
Mode T (SSB,CW-Inverting)	21.260-21.300	145.960-146.000	RUJ-OSCAR-20 (JAS-1b) (FO-20)		
Mode T (CW)	21.138	145.862 or 145.908	Beacon JA (CW, Analog)		435.795
AMSAT-OSCAR-13 (AO-13)			Mode JA (SSB,CW)	145.90-146.00	435.80-435.90
General Beacon (400 BPSK, CW, 50 Baud RTTY)		145.812	Beacon JD (CW)		435.910
Engineering Beacon (PSK, CW, RTTY)		145.985	Mode JD (1200 BPSK, FM-SSB)	145.85/87.89/91	435.910
Mode B (SSB,CW-Inverting)	435.420-435.570	145.825-145.975	OSCAR-21 (AO-21), Radio Sputnik 14 (RS-14)		
General Beacon (400 BPSK, 50 Baud RTTY)		435.651	Beacon (CW)		145.822
Engineering Beacon (PSK, RTTY)		435.677	Beacon (BPSK, FM)		145.952
Mode J (SSB, CW-Inverting)	144.423-144.475	435.940-435.990	Beacon (BPSK, SSB)		145.983
Beacon (PSK, RTTY)		2400.325	Mode B (SSB, CW-Inverting)	435.022-435.102	145.852-145.932
Beacon (PSK, RTTY)		2400.664	Rudak 2 (A/BPSK, FM)	435.016/155/193	145.983 or 145.987
Mode S (SSB, CW, FM)	435.601-435.639	2400.711-2400.747	Rudak 2 (Various Modes)	435.041	145.983 or 145.987
Mode R, J, dsk	1269.71	435.677	Beacon (CW)		145.948
Note: Mode "L" is no longer operational on AO-13.			Beacon (BPSK, FM)		145.838
UOSAT-OSCAR-14 (UO-14) (Taken out of amateur service)			Beacon (BPSK, FM)		145.800
Note: This (Surrey) satellite is now given over to the "Satellite" organisation and is being used to deliver humanitarian medical aid to developing countries. DO NOT attempt to communicate with or via this satellite. It is no longer available to the amateur service and the amateur transponders have been turned off.			Mode B (SSB, CW-Inverting)	435.043-435.123	145.866-145.948
AMSAT-OSCAR-16 (AO-16) (Pecsat)			UOSAT-OSCAR-22 (UO-22)		
Mode J (1200 BPSK BBS, FM-SSB)	145.90/92 or 94/96	437.025 437.050 2401.1 or 1428	Mode JD (9600 Baud FSK, FM)	145.90/975	435.120
Mode S (1200 BPSK BBS, FM-SSB)			KITSAT-OSCAR-23 (KO-23)		
AMSAT-OSCAR-17 (DO-17) (Dove)			Mode J (9600 BPSK BBS)	145.85/90	435.175
Beacon 1 (1200 bps AFSK, Digital Voice, FM)		145.82516	KITSAT-OSCAR-25 (KO-25)	145.870	435.175
Beacon 2 (1200 bps AFSK, Digital Voice, FM)		145.82438	ITAMSAT-OSCAR-26 (IO-26)	145.980	436.500
Beacon 3 (1200 BPSK Digital Voice, SSB)		2401.2205		145.875	435.867
AMSAT-OSCAR-18 (WO-18) (Webarsat)				145.900	435.822
Mode J (1200 BPSK RC, SSB)		437.075 or 437.10	AMRAD-OSCAR-27 (AO-27)	145.850	436.800
			POSAT-OSCAR-28 (PO-28)	145.825	435.250
				145.875	435.275

The ARSENE satellite has failed and has been removed from the list.

The last four satellites are new and are currently in various phases of commissioning. Their technical make-up is quite complex. I will feature them one by one in complete detail each month in future columns.

*359 Williamstown Rd Yarraville VIC 3013
Packet: VK3JT @ VK3BBS

WIA News

Publicity for JOTA

The Queensland *Sunshine Coast Weekly* carried a story and photograph on Jamboree of the Air (JOTA) activities at Woombye in the last week of October. Headed "Scout groups talk via satellite", the story told how the JOTA opening address was broadcast round Australia using the Optus satellite.

The paper opened the story with a strong link between amateur radio and the scouts and guides, saying, "The Jamboree of the Air is the largest event in the annual

calendars of the scout and guide movements and the Amateur Radio fraternity — especially in Australia."

Woombye Rover Advisor and amateur, Ian Hart (no callsign quoted), was credited with organising Woombye Scout Group's participation and supplying the equipment. The picture accompanying the story showed Ian with a very young scout cub.

"Many long conversations were had by the Woombye youth with members of groups from Noosa,

Mapleton, Caloundra, Loganlea (Brisbane), Ballarat (Victoria), Guildford (Sydney) and Cradle Mountains (Tasmania)," the *Sunshine Coast Weekly* reported.

All good, positive publicity for amateurs and amateur radio involvement in the community. Remember, it's always good to contact your local media whenever you have an event of this sort, a club function, a field day or whatever. Public exposure does much to dispel public mistrust and misunderstanding of "those nuts/CBers with the radios."

AWARDS

John Kelleher VK3DP — Federal Awards Manager*

Happy New Year to all. Your interest and encouragement has allowed me to achieve success during this past two and a half years. Please keep it up, as I relish the thought of providing more service to you in the future. Some long standing and Honour Roll members have personally thanked me for my efforts.

On the subject of DXCC upgrades. The same message keeps coming up. "It has taken a long time to finally gather these ten plus countries." In this present period of depressed DX activity, I WILL ACCEPT ANY NUMBER OF ADDITIONAL COUNTRIES to upgrade your totals, and to keep you on the active DXCC listings. I have found it necessary to transfer quite a few stations to the inactive list. This has come about because most have not upgraded their active totals since 1 December 1987, or their totals have dropped below 100 due to deletions, etc.

So, if your call sign is not shown in the next DXCC listings, which should be published next month, then that is the reason why.

Canadaward

Confirm two-way contact with all Canadian Provinces and Territories. Endorsements for any band 8 to 180 metres, and on any mode via Oscar satellite. Modes may be Mixed, all CW, SSB, or RTTY. Contacts after 1 July 1977 qualify. Send cards OR GCR list, plus US\$8.00, or 10 IRC to..... CARF Awards Manager PO Box 358, Kingston, Ontario, Canada K7L 4W2. Provinces and Territories needed are ..

VO1/VO2 Newfoundland & Labrador
VE1 Prince Edward Island
VE1 Nova Scotia
VE1 New Brunswick
VE2 Quebec
VE3 Ontario
VE4 Manitoba
VE5 Saskatchewan
VE6 Alberta
VE7 British Columbia
VE8 North West Territory
VY1 Yukon Territory

Stampede City Award

Contact 10 stations in the City of Calgary, Alberta, after 1 January 1962. All Calgary ARA members qualify. All bands and modes. A contact with VE6AO, AP, GQ, HE, MX, NQ, RH, RQ, SA, VK, VO and VE7DE, OK count double points. The award is free, but please include sufficient return postage. Apply with log extract to

Russ A Wilson VE6VK, 1235 Richland Road NE, Calgary Alberta Canada T2E 5M5.

The Canary Islands Diploma

Work 10 different EAB stations since 29 April 1971. GCR list plus 15 IRC, or equivalent to Diploma Islas Canarias, Apartado 860, Las Palmas de Gran Canaria, Canary Islands.

Copenhagen Award

Contact 5 stations in the Copenhagen area. Available for CW, SSB or Mixed. All bands. SWL OK. GCR list and 5 IRC to Allis Anderson OZ1ACB, Kagsaavej 34, DK-2730, Herlev Denmark.

The J28 Award

Contact J28 stations after 27 June 1977. Expedition and other special call signs are acceptable. For 1st Class award, contact 8 stations in Djibouti on any modes, but on two bands. For 2nd Class award, 15 QSOs on at least 2 bands, 5 of which must be CW. The same station may be

counted once on each band GCR list and a fee of US\$6.00 to Award Manager J28DM, ARAD, PO Box 1076, Djibouti, Djibouti Republic.

DXCLA

For the Short Wave Listeners, from the Radio Society Great Britain (RSGB) we have the DX listeners Century Club (DXCLA). This award can be claimed by any SWL who can produce evidence of having received signals from amateur radio stations located in 100 plus DX countries. The fee is US\$4.00. Applications go to Awards Manager, S Emlyn-Jones GW4BKG, PO Box 20, Bridgend, Mid-Glamorgan CF35 6EP, United Kingdom.

Special Event

V73AX, commemorating the 50th anniversary of the Battle for Kwajalein Atoll, operating from the Kwajalein Amateur Radio Club, Republic of the Marshall Islands, during 1745 UTC 31 January 1993 to 1920 UTC 5 February 1994; SSB, CW and RTTY on HF and 6 metres; conditions permitting. For QSL, send your QSL and SASE or IRC to KARC, PO Box 444, APO AP 96555, USA.

*PO Box 300 Caulfield South 3162

QSP News

160 Metre "Have a Go" Activity

Hastings Branch of the NZART (the New Zealand sister society to the WIA) is arranging this recreational activity again this year.

Use this non-competitive opportunity to experiment with aeriels and populate the 160 m band. Try a group effort.

In previous years this event has proved very popular without problems of band crowding. Based on previous years experience, DX results are likely.

CW or LSB on approx 1840 kHz from 2000 NZT on 18 March 1994 to 0200 NZT on 19 March 1994; and the same times 24 hours later.

If you want more information, contact David Walker ZL3DK, 36 Ardrossan Avenue, Flaxmere, Hastings, NZ.

ELECTRONIC DISPOSALS

03 723 2699

Magnetic antenna mounts	\$35.00 ea
PL259 Crimp plugs	\$ 1.00 ea
Mirror antenna mounts	\$ 8.95 ea
Tension egg insulators	\$18.95 ea
Gutter mounts	\$19.90 ea
Bull bar antenna mounts	\$ 8.60 ea
Base and antenna leads	\$ 9.95 ea
Top quality VU meters	
Large	\$26.50 ea
Small	\$19.95 ea
Assorted electrolytic capacitors	
Bag of app 100	\$ 6.00
Assorted green caps	
App 150	\$ 9.00
9v 200 mA plug packs	\$ 3.00 ea

Come and look at the range of stock at

27 The Mall

Cnr Eastfield & Bayswater Roads
South Croydon Victoria 3136

Club Corner



The "hounds" line up at the start of the one of the BARG Hamvention "fox hunts".

BARG Hamvention '93

Isn't it a great feeling when you plan to do something on a grand scale and when you carry out the task everything just falls into place in line with the details that you have spent weeks sorting out and arranging?

Tom (VK3DMK) must have experienced that great feeling on 31 October at the Bray Raceway in Ballarat.

You see, Tom was the Co-Ordinator for the BARG Hamvention which proved to be an outstanding success, due in no small measure to the many weeks of effort he put in planning and arranging the details. Of course Club Members also pitched in to help out, and what a magnificent effort by the XYLs who catered for the scrumptious lunch.

The writing was on the wall on the Sunday morning when we woke up, for the WX could not have been better for the occasion. We should not have been concerned of course because after all this is Ballarat, and it's renowned for its WX.

930 other radio orientated people must have agreed with our prediction, as they started to roll up as soon as the gates opened, and what a great day they had!

The 8 commercial tables were set up with all of their goodies, the 25 private tables had an amazing array of pre-loved "bitz'n pieces", the coffee was on tap and the foxhunting hounds were straining at the co-ax ready to pursue the hapless fox.

Train travellers had been picked up at the station and brought to the venue and VK3RBA was busy as travellers called in for directions to the venue. The BARG Hamvention was in full swing.

All day the fervour continued as mate greeted mate and new mates were welcomed, but QSOs really took hold over the lunch tables in the well appointed dining area. Sausages and hamburgers together with appropriate trimmings and a dessert were gratefully consumed, and the QRM built up as stories were swapped, or the performance of that new rig or antenna was extolled into the receptive ear of a willing listener.

Meanwhile, at the commercial and pre-loved tables, housekeeping budgets took a hammering as that elusive piece of gear that "I've wanted for ages" or "I reckon I can get going" or "Joe's got one of these — they're great" disappeared into coat pockets or the boot of the car so it would be out of sight of the XYL until it could be furtively positioned on the bench in the shack so that it looked like it had been there for years.

And yet at the end of this great day I couldn't help feeling sorry.

I felt sorry for those who, for whatever reason, couldn't get along to share this wonderful day with us. But never mind, rest assured that it's on again next year, for sure, and Tom and the Club are determined that the BARG Hamvention

for 1994 will be BIGGER and BETTER than ever. Put it in your Diary NOW!

Norm VK3LBA
Publicity Officer BARG

1994 Gosford-Central Coast Field Day

The Gosford Field Day is one of the longest running events in the Australian amateur radio calendar. The next Gosford Field Day will be held on Sunday, 27 February 1994 at Wyong Racecourse and this will be the 37th year of this popular and growing event.

As usual the large contingent of well known suppliers of electronic equipment, components and books will be attending. These companies will have their latest products on display and many traders will have items on sale at very special Gosford Field Day prices.

Last year the popular "Flea Market" attracted a large number of people who traded an enormous amount of surplus electronic equipment to eager buyers from trestles, their trailers or from the boot of their car. The organisers expect the flea market to boom with even more vendors than last year.

The organisers, the Central Coast Amateur Radio Club Inc, have kept the format for the field day in line with the changing face of amateur radio. In recent years seminars on a wide range of topical subjects, ranging from packet radio to satellite communications, have been a popular attraction. This year an even bigger program of interesting lectures and equipment displays has been arranged. Some attractions, however, have remained unchanged and ever popular. Among these is the so called disposal sale of thousands of new and used items of surplus equipment, many bargains going up for grabs. This year the minimum value of \$20 per lot will apply to disposals sales.

More than two thousand people attended last year's Gosford Field Day. The next one at Wyong racecourse will be bigger and better than ever, so mark 27 February 1994 down in your calendar now! Gates will open at 9.00 am in wet or fine weather and all displays are under cover.

Bob Fitzgerald VK2XRF,
Publicity Officer

Sign up a new WIA member today — we need the numbers to protect our frequencies and privileges.

Contests

P Nesbit VK3APN — Federal Contest Coordinator*

Contest Calendar Jan — Mar 94

Dec 26/	Jan 16 Ross Hull Memorial	(12/93)
Jan 1	ARRL Straight Key Night	(12/93)
Jan 12	ARRL RTTY Roundup	(12/93)
Jan 15/16	WFFU-HF Field Day	(12/93)
Jan 16	HA DX CW Contest	(12/93)
Jan 28/30	CQ WW 160 m CW Contest	(12/93)
Jan 29/30	UBA (Belgium) SSB DX Contest	
Feb 12/13	PACC CW/SSB DX Contest	
Feb 12/13	Spanish RTTY Contest	
Feb 19/20	ARRL DX CW Contest	
Feb 25/27	CQ WW 160 m SSB Contest	(12/93)
Feb 25/27	RSGB 7 MHz CW Contest	
Feb 26/27	UBA (Belgium) CW DX Contest	
Mar 5/8	ARRL DX SSB Contest	
Mar 12/13	BERU CW Contest	
Mar 19/20	WIA John Moyle Field Day	
Mar 19/20	Bermuda Contest	
Mar 19/20	BARTG RTTY Contest	
Mar 26/27	CQ WPX SSB Contest	

Here we are at the start of another year. I hope everyone is having a pleasant Christmas break, and managing to remember the family in the midst of antenna refurbishment, contests, DXing etc. The reference to "antenna refurbishment" is actually a gentle reminder because, like many people, I tend to put antenna chores off until two weeks before the big one, then I decide there's too much to do and put it off for the following year. Using this technique, one can defer antenna refurbishment almost indefinitely, at least until the system falls down or the house is sold. This is, of course, definitely not the right attitude.

After all, when our favourite contests are on, we warn the family in advance, put off social engagements and, unless something life threatening happens, we commit ourselves to the contest. This means spending up to 48 hours in the shack, losing sleep, not eating properly, using heaps of electricity, and generally convincing the family that at best we are eccentric, and at worst complete social misfits. Well, if we are going to suffer all this, at least make it worthwhile! This means doing those antenna chores now, including anything else which makes your station more competitive. Try and avoid doing what one top overseas contesteer planned to do recently, which was to erect two towers, put up a 40 m beam, a vertical, extra dipoles/slopers, and organise a multiop effort *only a week before the CQWW contest!* Even assuming such things are possible, the drain on one's physical and mental resources

before a big contest is definitely not recommended.

Many thanks to the following for help, information, and inspiration: VK2BQS, VK6NK, VK3AV, CQ, QST, and Radio Communications. Please keep the letters coming, including any spare copies of results. Until next month, good contesting!

73,
Peter VK3APN

Contest Details

The following contest details should be read in conjunction with the "General Rules & Definitions" published in April *Amateur Radio*.

UBA SSB/CW HF Contest

SSB: 1300z Sat to 1300z Sun, Jan 29-30
CW: 1300z Sat to 1300z Sun, Feb 26-27

This contest runs on the last full weekend of Jan and Feb each year (SSB & CW respectively). Any station may work any other worldwide. Categories are: single operator (single & all band); multioperator single transmitter; QRP max 10W O/P; SWL. Frequencies: CW 3500-3560, 7000-7035, 14000-14060, 21000-21060, 28000-28060; SSB 3600-3650, 3700-3800, 7040-7100, 14125-14300, 21175-21350, 28400-28700.

Exchange RS(T) plus serial number. Belgian stations will add their province code. Score 10 points for contacts with Belgian stations, 3 points with other European stations, and 1 point with others. The multiplier is the total of Belgian provinces, Belgian prefixes, and European countries. Total score is QSO points times multiplier. Send log, summary sheet, declaration etc. within 30 days to: UBA HF Contest, Oude Gendarmeriestraat 62, B-2220 Heist Op Den Berg, Belgium. Logs on disk in K1EA or ASCII format also welcome.

PACC CW/SSB DX Contest

1200z Sat 12 to 1200z Sun, Feb 12-13

The PACC is another popular European contest, with phone and CW held on the same weekend. The object is to work as many Dutch stations as possible on 160 to 10 m, excluding the "WARC" bands. Use CW only on 160 m. Stations may be worked only once per band, regardless of mode. Categories are single and multi-operator; SWL.

Exchange RS(T) plus serial number. Dutch stations will also send a 2 letter code indicating their province. Possible

codes are DR FR GD GR LB NB NH OV UT FL ZH ZL. Score 1 point per Dutch QSO. Final score is total QSO points times total Dutch provinces worked on each band (max 72). Mail logs by 31 Mar to: PACC Contest, PO Box 499, 4600 AL Bergen op Zoom, The Netherlands. Certificates will be awarded to the top scoring stations in each category, in each country and call area of VK, ZL etc.

Spanish RTTY Contest

1600z Sat to 1600z Sun, 12/13 Feb

The object is to contact as many stations worldwide as possible, on RTTY, 80 to 10 m. Categories are single operator (single/multiband); multioperator single transmitter; SWL.

Exchange signal report and CQ zone. Spanish stations will send signal report and province. On 10/20 m score 1 point per QSO with stations inside your WAC continent, and 2 points with stations outside your WAC continent. On 40 and 80 m, the QSO points are tripled. QSOs between stations in the same country can be claimed for multiplier credit, but not QSO points. The multiplier is the sum of the DXCC countries and Spanish provinces (max 52) per band. The final score is the total QSO points times the multiplier.

A Call to all Holders of a Novice Licence

Now you have joined the ranks of amateur radio, why not extend your activities?

The Wireless Institute of Australia (NSW Division) conducts a Bridging Correspondence Course for the AOCIP and LAOCP Examinations.

Throughout the Course, your papers are checked and commented upon to lead you to a successful conclusion.

For further details write to:

The Course Supervisor
WIA
PO Box 1066
Parramatta NSW 2124
(109 Wigram Street, Parramatta)
Phone: (02) 689 2417
Fax: (02) 633 1525

11am to 2pm Monday to Friday
7 to 9pm Wednesday

Send log, summary, declaration, by 9 April to: EA RTTY Contest, c/o EA1MV Antonio Alcolado, PO Box 240, 09400 Aranda de Duero (Burgos), Spain.

ARRL DX Contest

CW 0000z Sat to 2400z Sun, Feb 19-20 SSB 0000z Sat to 2400z Sun, Mar 5-6

The CW section of this contest is on the 3rd full weekend in February each year, and the phone section on the 1st full weekend in March. The object is to work as many WVE amateurs as possible on 1.8-30 MHz. Categories are single operator (single band, all band, all band QRP max 5 W Q/P, and all band assisted), Multioperator (single TX, two TXs, and unlimited). In the single and 2 TX categories, once a transmitter has begun operation on a band it must remain on that band for at least 10 minutes. Listening time counts as operating time.

Exchange RS(T) and a 3 digit number indicating approx output power. WVE stations will send RS(T) and state/province. Score 3 points per WVE QSO. The multiplier is the sum of US states and District of Columbia (DC) (except KH6/KL7), NB (VE1), NS (VE1), PEI (VE1 or VY2), PQ (VE2), ON (VE3), MB (VE4), SK (VE5), AB (VE6), BC (VE7), NWT (VE8), YUK (VY1), NF (VO1), and LAB (VO2) worked to a maximum of 62 per band. The final score equals the total QSO points times the multiplier.

Entries with more than 500 QSOs must include crosscheck (dupe) sheets. Logs on DOS disk are welcome. Include a paper summary sheet showing useful info. Multioperator entries must list all operators. Entries must be postmarked by 6 April 1993 or will be classed as checklogs (no exceptions). Mark the envelope CW or phone and send the log to: "ARRL Contest Branch, 225 Main Street, Newington, CT 06111, USA". Certificates will be awarded to the top scoring stations in each country and category, and plaques to the top worldwide and continental stations.

RSGB 7 MHz CW Contest

1500z Sat to 0900z Sun, Feb 26-27 1993.

The object of this contest is to contact as many British Isles stations as possible on 40 m CW Exchange RST plus serial number starting at 001; UK stations will add their county code (see this column Sept 93 for list). Oceania stations score 30 points per QSO, and the final score is the total QSO points times the number of UK counties worked. Include a summary sheet showing all standard details, plus a checklist if more than 80 QSOs are

made. Send logs to arrive by 18 April 1993 to "RSGB HF Contests Committee, c/o S. V. Knowles G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey, CR7 7AF, England". Airmail is recommended, as late logs may be treated as check logs. Certificates will be awarded to the leading entrants in each overseas section.

Results of 17th West Australian Annual 3.5 MHz Contest

CW	SSB
VK6AFW 3520	VK6WJH 14250
VK6BN 3222	VK6XG 13528
VK6AF 2970	VK6BN 8576
VK6XG 2096	VK6RG 4172
VK6BWI 1780	VK6YY 3521
VK6ARI 1620	VK6AR 3096
VK2AYD 1026	VK6KRA 2736
VK2QF 720	VK6SMH 2054
VK6RG 684	VK6SE 378
VK4OD 672	L4001B 120
VK3XB 504	
VK4XW 420	
VK5UE 150	

Conditions for both contests were very good with some DX. The combination of both contests in conjunction with the VK4 Jack Fines Contest encouraged more activity from the other states. A very pleasing result.

More participation by VK6 stations would have been appreciated by all, especially for the SSB contest "so how about it for the next time", it's a very friendly contest of only 3 hours duration.

73, Cliff Waterman VK6NKK

Results of 1993 World Wide ANARTS Contest

Participation this year was higher than last, with logs up 62%. Logs averaged 109 QSOs each, and the total QSOs recorded was 5115. Approx 450 to 600 stations exchanged numbers in the contest, including only 12 VKs! The standard of logs was very high, and the efforts of some stations who were unable to obtain a copy of the Points Table were outstanding. One in particular had tabulated what information he had so carefully that his log was easier to check than many who had full facilities available! However, some difficulties still arose, and many scores had to be adjusted, although not to the extent of affecting Certificates.

Some comments from operators: Great contest! Sure wish I had even heard Africa (K7WUW)... Band conditions bad year by year, but enjoy contest very much every time. I really want more VK participants (JA3DLE/1)... It is a very friendly contest (SM6BSK)... 73 & QRO to all HAMS and SWLs in VK (ONL383)... Am probably the first China station in ANARTS contest (BT2000BJ)... Had fun; it was a great contest but conditions were very poor (W9FFQ)... Weather wet and windy, open wire feeder broke Saturday, repaired on Sunday in rain, but Sunday evening the centre link broke and it fell down. Never mind, there is always next year (G4SKA)...

We hope to see you and your friends next year.

73, Jim VK2BQS
(ANARTS Contest Manager)

1993 World Wide ANARTS Contest Results						
Call sign	Total Pts	QSOs	QSO Pts	Mult	Conts	VK Bonus
Classification A: Single Operator						
1. VK2KM*	4,487,616	224	8904	84	6	-
2. UL9P	1,928,580	196	3030	106	6	1500
3. OH2LU	1,673,202	235	2343	119	6	300
4. VK5HB	1,619,700	135	5399	60	5	-
5. 4X6UO	1,273,032	194	3166	87	6	300
6. JA3DLE/1	1,206,000	142	3540	68	5	2400
7. AB5KD	1,037,712	230	2188	79	6	800
8. K8UNP	964,664	237	2284	71	6	200
9. W1BYH	824,676	173	2081	66	6	800
10. SV2BFN	813,540	163	3188	51	5	600
11. KA5CQJ	629,954	240	1719	61	6	800
12. AH6JF	625,460	132	2599	48	5	1700
13. VC7SAY	525,790	196	2283	48	5	700
14. YU7AM	494,625	119	1521	65	5	300
15. VK6GOM	490,728	99	2921	42	4	-
16. G5LP	467,934	140	1321	59	6	300
17. BT2000BJ	324,792	98	1842	44	4	600
18. SM6BSK	248,080	77	645	54	6	400
19. W2JGR/0	239,695	104	1113	43	5	400
20. G4SKA	218,960	89	841	52	5	300
21. GM0/WN1J	213,392	104	658	54	6	200
22. K7WUW	212,225	88	1145	37	5	400
23. SM5FUG	202,365	77	859	47	5	500
24. WA8FLF	165,250	69	785	35	6	400

1993 World Wide ANARTS Contest Results (continued)

Callsign	Total Pts	QSOs	QSO Pts	Mult	Conts	VK Bonus
Classification A: Single Operator						
25 A4SZW	145,700	51	910	40	4	100
26 SP3SUN	128,325	52	625	41	5	200
27 ZL2JON	115,200	39	1140	25	4	1200
28 KI4MI	111,980	76	621	36	5	200
29 JA3BSH	48,424	26	667	18	4	400
30 W9FFQ	44,935	46	389	23	5	200
31 VE7VP	40,080	31	470	21	4	600
32 VK2BQS	39,368	26	703	14	4	-
33 ON5SV	35,832	45	262	34	4	200
34 WA4MCZ	25,320	20	314	16	5	200
35 VK2CTD	10,494	16	318	11	3	-
36 SP3BGD	10,000	11	198	10	5	100
37 OM3CPS	9,126	22	169	18	3	-
38 OH6UP	2,806	13	82	11	3	100
39 DF5BX	384	12	32	12	1-	-

Check Log: LA9FFA

Classification B: Multi Operator

1. VK2RT*	4,836,000	300	12090	80	5	-
2. VE3FJB	1,366,844	253	3076	74	6	1100
3. WF5E	220,880	129	1024	43	5	500
4. OM3RJB	28,790	32	334	17	5	400

Classification C: Short Wave Listener

1. ONL383*	639,480	158	1210	88	6	600
2. ONL4335	66,500	78	384	45	5	100
3. ONL3997	60,940	75	338	45	4	100
4. DE0GMH	13,992	29	159	22	4	-

*World Plaque Winners

Certificates were awarded to the 1st, 2nd and 3rd placegetters in each country. The few who miss out will receive "Participation Certificates" in appreciation for their entry

Results of 1992 IARU World HF Championship

Call/Score/QSOs/Mult/Category
(A = mixed, B = phone, C = CW, D = multop)

VK2APK	584,218	1023	118	C
VK2AYD	169,998	408	87	C
VK2AYK	137,724	414	89	A
VK4TT	12,954	164	17	C
VK6AJ	109,311	277	83	C
VK6ANC	(VK6s JIP, TKR, TVA)			
	93,682	276	59	D
VK6BWJ	1,188	24	11	C
VK8AV	146,124	390	81	C
P29DX	801,600	1392	120	B

Results of 1993 ARRL DX Contest

Single band leaders for Oceania are VK4s TT & XA (20 & 10 m CW respectively), and VK3s DZM & EW (80 & 40 m phone respectively) VK2APK was 6th world outright on DX Low-Power CW.

CW

(Call/Score/QSOs/Mult/Band)

VK2APK	1,074,708	1674	214	A
VK8AV	532,170	1095	162	A

VK2NV	17,328	76	76	A
VK8BE	2,280	38	20	A
VK6HG	10,788	116	31	40
VK3APN	3,864	56	23	40
VK4TT	27,183	221	41	20
VK4XA	75,852	516	49	10

Phone

VK5GN	918,450	1570	195	A
VK3DZM	12,342	121	34	80
VK3EW	123,090	746	55	40
VK2VM	3,366	51	22	40
VK2GAH	79,713	521	51	10
VK8BE	5,538	71	26	10
P29DX	182,589	503	121	A

Phone (Multioperator)

VK1DX (VK1s PJ, ST; VK2s ILK, IVK)	661,878	1442	153	
------------------------------------	---------	------	-----	--

Results of 1993 ARRL RTTY Roundup

Call/Score/QSOs/Mult/Hours

VK4SSB	1,134	54	21	24
VK8BE	84	14	6	24

World Fox Hunting Championships 1994

The world amateur radio direction finding contest will be held in Loka Brunn, Sweden during the week starting 12 September 1994, under international rules.

The organisers are the IARU Region 1 committee.

The first Region 3 contest was held in China early in October 1993. A two member Australian team, VK4CAU and VK4DO, took part in the old timers section, coming fourth in both the 2 metre and 80 metre events. Frank VK4CAU was fourth in the 80 metre individual section.

A total of 57 competitors from nine countries took part in the events in rather rough terrain.

A seminar on "radio sport" will be held near Brisbane early next year to promote the sport.

Any enquiries, or a request for a copy of the rules, should be sent to Wally Watkins VK4DO, PO Box 432, Proserpine QLD 4800.

VK30T Century on Six

Steve Gregory VK30T has done it again! Not EME this time, but QSOs on 6 metres to the Antarctic ice-cap.

This gives Steve officially 100 countries on 6 metres, so he becomes the first VK station to make DXCC on this band.

The contacts made during the DX opening on 19 November 1993 were with Mark VK0AQ (whose home call is VK5AVQ) located at Casey Base. Mark also worked VK3LK and VK5NC. All stations reported heavy QSB with signals from S1 to S5 on 50.12 MHz SSB

(Steve also has a letter of appreciation in the Over to You column elsewhere in this issue. Ed.)

Have you advised the WIA Federal Office of your new callsign?
Use the form on the reverse side of the Amateur Radio address flysheet.

Divisional Notes

Forward Bias — News from the VK1 Division

Christopher Davis VK1DO

I hope that all our local amateurs have had an enjoyable Christmas break and are ready to implement their numerous and radical new year's resolutions. I trust, that if you have had what might be a rare opportunity to do some operating, that band conditions have been good for you.

Our weekly broadcasts, just to refresh your memory, are still in recess until Monday January 17th which is one week before our first monthly meeting for 1994. Please remember that there is no broadcast on a monthly meeting night. At our January meeting we hope to present an edited compilation of the January 1993 and January 1994 VHF UHF field day which will have taken place just ten days before the meeting. I hope that our tireless film crew will find the required time to put together a tantalising insight into the world of VHF.

Someone asked me at the Christmas BBQ, back in November, when I intended to drop the subject of our February annual general meeting. Considering that the question was asked in polite company I chose to treat the matter with the characteristic light heartedness for which I am renowned. However, returning to matters of grave importance, the AGM is not just a topic that attracts my interest as a way of padding out this column. The difficulties various Divisions, and indeed almost all volunteer groups outside of our hobby, experience in co-opting members for positions on a committee of management is a subject deserving of a text book in its own right, not just brief coverage in this column.

Having strayed dangerously close toward an observation that could be misconstrued as cynicism, let me applaud what appears to be a stunning resurgence of enthusiasm within our Division. Recent arrivals within the Division, and indeed the hobby, are looking like a force to be reckoned with. Early nominations already represent a substantial percentage of the available positions on our 1994 committee. Perhaps your reluctance in the past has been borne out of the reluctance of others. A little bit like mutual reluctance, I guess this deleterious negative influence does not exist, according to my recent observations. Adequate notice has been given for you to complete knitting that arctic sweat suit, resign from the young liberals and so on. We look forward

to your nomination, or your being nominated by fellow committee persons, in the very near future.

On my own local scene, I have been plagued by numerous sources of power line noise for some time. The difficulty involved in detecting, reporting and rectifying these problems has been a long term problem. Shortly, I hope to be able to report on what is an imminent success in sorting out these headaches. The techniques, including the innovative role of local amateurs professionally involved in the field, the procedures in terms of dealing with the authorities, will make fascinating reading. I am certain, to anyone who has, or has had, similar difficulties. Stay tuned.

Returning, for a moment, to another topic which amply demonstrates the enthusiasm which can prevail when we egg each other on. John Moyle National Field Day. The three teams, previously mentioned, sound like they are well equipped, well trained and positively dangerous in their capacities to storm the weekend in March. So, be there or be a rhombic!

If you haven't previously tried your hand at VHF, even on the FM frequencies, the VHF UHF field day would be an excellent opportunity to grab a beam and take to the nearby hills. You might be pleasantly surprised by what you are able to work. Consult the rules for the Ross Hull contest. There is provision for a novice entry, competing against similarly equipped stations. Give it a go!

During 1993, we ran an examination early in the year to accommodate candidates who had supposedly spent some productive time studying during their holidays. The results in this particular exam rather brought into question whether the study had been fruitful. Although we are happy to run exams of the number previously seen, I suspect that so early in the year isn't as beneficial as compressing the same number of exam events into the more concentrated regions of April through November. This offers some potential to courses and classes students who have barely scratched the surface in February.

We will always welcome your expressions of interest in running additional exams providing the numbers justify the demands then placed on our volunteers. Small exams are simply not feasible unless you are prepared to individually cover all associated overheads on your own, and that would be prohibitive. Based on continued

demand, we would intend to run some four or five exam sessions this year. These would be scheduled approximately in April, May, July, September and November.

No doubt, our new committee, which takes office in February, will have its own plans and provisions for weekly broadcasts. I hope that the provision of material for inclusion in each week's effort is a little more forthcoming to make the task less of a chore. Are you able to assist with the provisions of station facilities or announcing duty? Spreading the load among many ensures a fresh and vital approach.

As a small Division without club rooms or fixed station facilities, the sharing of the broadcast is crucial otherwise the imposition on spare time and hospitality leaves a nasty taste in one's mouth. If you have not been involved in the broadcast and feel that the whole job, even on a roster basis, is too foreboding, consider carrying out one of the associated ancillary tasks. Preparation of material; local news; band conditions; news of visitors; a technical or humorous article seen in another journal. Could you reliably, with others on a roster, take call backs on one of the broadcast frequencies. The expressions of appreciation expressed on the callbacks become meaningless platitudes in supporting the continuation of this large undertaking unless the job involves a wider dynamic group.

Enough precarious soap box work for another month. See you at the January general meeting on Monday the 24th.

VK2 Notes

John Robinson VK2XY

The VK2 Notes return! Do you remember the Division's recruitment and retention promotion campaign which ran from December 1992 to February 1993? Well, it was a huge success and it's on again — in case you missed the announcement we inserted in December's *Amateur Radio*.

Members who renew, or non-members who join up between 1 December 1993 and 28 February 1994, will be eligible to win a brand new rig. First prize will be a Kenwood TM-241A 2 m, 50 watt mobile rig, while second prize will be a TH-28A 2 m, 5 watt handheld rig. Total value of the prizes is over \$1400.

All you have to do is renew if you're a member or join if you're a non-member. If your renewal does not fall within this period, no matter — you can renew early! Early renewals must be sent to the Divisional Office, NOT to the Federal Office. All grades of membership are

eligible. Members currently on a three-year term are included, as are life members. Both prizes will be awarded by way of a draw and presented to the winners early this year following the close of the promotion. Thanks go to Kenwood Electronics Australia who have again generously sponsored the promotion by donating the prizes.

For our numerous country members, the Division has installed a new Freecall telephone service. Outside the Sydney metropolitan area, you can call the Divisional office on 1800 817 644. Free calls to this number can only be made from within NSW. It is only open for calls between 11 am and 12 noon Mondays to Fridays (the hour before 689 2417 is open), and 7 pm to 9 pm on Wednesday evenings. If you are calling, please remember that there may be others trying to get through too, so keep your calls to the minimum length necessary to conduct your business. We particularly welcome country members using this new facility to order books, for example. You can pay for your purchases by quoting your credit card as the Division has credit card merchant facilities.

For those who don't manage to catch the Division's Sunday news broadcasts, we have re-established the "voice mail box recorded news highlights", but on a new number. The previous voice mail box was a member's private arrangement and he withdrew it following the AGM last May. The new mail box number is 02 724 8793. You can call the service and hear pre-recorded Divisional news highlights — a shorter version of the Sunday news broadcasts. At the end of the recording you are prompted to leave a message. At that point you can wait to be disconnected or simply hang up. Organised by Peter Vernon VK2JPL, it uses a digital voice messaging technology called OCTELNET, by Exicom Communications.

There's a new book in stock in the Divisional bookshop, "Practical Filter Design", written by Jack Middlehurst and edited by Roger Harrison VK2ZTB. It's written in an easy to understand style and covers just about everything you ever wanted to know about the subject of filters — and then some. The drudgery of filter design calculations is banished by a series of computer programs, all listed in the book. Better yet, the book comes with a disk containing all the programs for owners of IBM-type PCs. If you don't have that type of computer, all the programs are written in the BASIC language so you might translate them to the BASIC used on your machine.

A subcommittee of Bob Lloyd-Jones VK2YEL, Eric Fossy VK2EFY and Pixie Chapple VK2KPC is working on a draft of

Divisional operating policies and procedures. Their first progress report was due to be presented to Council in December. Their proposals should go a long way to improving the Division's operations, putting the ridiculous laissez-faire attitudes of the past behind us and placing the Division's functions and operations on a proper, business-like footing — for everyone's benefit.

And just a reminder. Our Constitution says the AGM (and thus Council elections) must happen in April, or as near as possible to it. If you're thinking of standing for Council for 94-95, better get your nominations in pronto.

5f8 Wave — VK5 Notes

Rowland Bruce VK5OU

I am afraid this will one of the shortest 5f8 Wave columns ever written. Due to a combination of events at work, illness and an early deadline due to the Christmas period, I find myself isolated near the South Australia/Northern Territory border

without access to a keyboard of any sort. Not even a battered old typewriter. The same combination of events has caused me to miss the November meetings (Council and General) of the South Australian Division of the WIA.

Such notes as I do have, and they are very few, are down in Adelaide.

Firstly, though, let me express Council's greetings and felicitations for the New Year. May it be possible for you to say in twelve months time, "that was a good year".

Secondly, and I know it seems early, but time has a habit of accelerating as a date approaches, give a thought to nominating someone, possibly yourself, to a position on Council. I am writing this on 23 November, the 30th anniversary of the assassination of John Kennedy. One could well paraphrase his well known challenge, and apply it on a smaller scale to our own organisation. Do you remember it? "Ask not, then, what your country can do for you, but rather, what you can do for your country".

AR

How's DX

Stephen Pail VK2PS*

A happy and a healthy New Year to you all. Now that we have all made our secret New Year's resolutions, let me help you with the calculation of your local time in relation with the time in VK2. This is the season of the year when the "burden of confusion" descends on this great country of ours.

On 30 October the majority of the Australian states, VK1, VK2, VK3, VK5 and, earlier, VK7 advanced the clocks one hour. VK4, VK6 and VK8 did not move with the summer. They stayed with their old standard time. As a result, Australia now has five distinct time zones instead of three. When it is noon in Sydney, Canberra, Melbourne and Hobart the clock in Brisbane shows 11.00 am, it is 11.30 am in Adelaide, 10.30 am in Alice Springs and 9.00 am in Perth. Consequently, New Zealand is two hours ahead of Sydney, Port Moresby is one hour behind, Tokyo is two hours behind Sydney time, Hong Kong three hours behind, South Africa and Moscow nine hours behind, Europe 10 hours behind, Britain 11 hours behind, the US east coast 16 hours behind and the US west coast 19 hours behind Sydney time.

In March this year we will wind the clock back one hour and hopefully things will become normal again.

It is interesting to note that the following

countries, just to name a few, do not have daylight saving schemes: China, Fiji, Hong Kong, India, Indonesia, Japan, Malaysia, PNG, Philippines, Singapore, South Korea, Taiwan and Thailand.

This time change during the Australian Summer should not affect whatsoever the thinking of a "true" DXer. He knows that the Co-ordinated Universal Time (UTC, formerly GMT) did not change. It stayed constant.

Pitcairn Island — VR6

I have a QSL card before me from Meralda VR6MW. It says *Taking command of the ship Bounty from Capt Wm Bligh on the 28th April in 1789, Fletcher Christian returned briefly to Tahiti enlisting 6 Tahitian men and 12 Tahitian women to join the small group of 9 mutineers in their search for a safe haven from the long arm of the British Navy. On January 23rd in the year of 1790 the mutineers landed on Pitcairn Island, burned the Bounty and began their small colony hidden from the eyes of the outside world.*

Pitcairn Island (25° 4' South and 130° 6' West) is not hidden any more from the outside world. The island has a regular supply shipping schedule every four months. The next ship leaves Auckland, New Zealand, in March this year, so get your QSL card on its way to reach



Photo 1 The ZSOPi team [l to r] James DJ0WQ, Peter DJ2ZS, Roland DJ4LK and Gunter DK2WH.

Auckland at the latest by February. Pitcairn Island has no harbour or jetty. The cargo of the ship is offloaded in about eight hours on the open sea into long boats with about 4-5 bags of mail, and the ship departs. Reply to your QSL card will be picked up by the next ship four months later. It will take at least 12 months before you get a reply to your card, so be patient.

Of course, you can always phone Pitcairn Island via the satellite link, but a one minute call from New Zealand to Pitcairn will set you back about \$18.

The easiest way to contact Pitcairn is by amateur radio. There are now at least 14 licensed amateurs on the island (six more are in training this year) of which 12 amateurs were very active on 28-30 November 1993 for 48 hours.

The Pitcairners were celebrating, with a special callsign, the signing of the so called "Pitcairn Island Constitution" (the administration rules of the island) drawn up, at the Pitcairners request, by Commander Russel Elliott Esq, captain of the sloop HMS Fly on board ship on 29 November 1838. These rules gave the women on the island the same voting rights as the men. It can be assumed that the Pitcairners were the first in the world to obtain women's suffrage 155 years ago.

The special event station used the callsign VR6FLY plus the actual operator's suffix. The following Pitcairn stations took part in the celebrations: Tom VR6TC, Betty VR6YL, Brian VR6BX, Kari VR6KY, Irma VR6ID, Meralda VR6MW, and the new generation of amateurs Trent VR6TA, Shawn VR6SC, David VR6DB, Mark VR6ME, Clance VR6CN and Dave VR6DR.

To obtain a special QSL card you must state the operator's suffix, ie VR6FLY/TC, if your contact was with VR6TC. QSL, direct only, to Brian Young, Private Bag, Pitcairn Island, South Pacific via New Zealand. Please enclose a SAE and one "green stamp". IRCs are not used on the island. Be patient and wait on the reply.

Penguin Island — ZS0 & Walvis Bay — ZS9

This German DXpedition took place from 28 July to 4 August last year (see *Amateur Radio* June and September

issues). Gunter DK2WH, one of the participants, has written me a letter about the Penguin Island adventure. The four team members, Roland DJ4LK (licensed also as V51LK), Peter DJ2ZS, James DJ0WQ and Gunter DK2WH left Windhoek, the Namibian capital, on 26 July for Luderitz, an old German-looking harbour town, 800 km north on the Atlantic coast. The fishing boat "Mirandic" carried them to the island on 28 July.

The island is uninhabited and is very small, about 1500 by 500 metres. The old buildings are in disrepair. The expedition's first task was to clean out one dilapidated house of the strong smelling guano, the "white gold of the cormorants", which is still produced by more than a half million seagulls, cormorants and all sorts of other birds. After many hours of hard work the house became a shack, kitchen and sleeping area. Activity started early afternoon with a vertical antenna. Next day they put up a Yagi for 20, 15 and 10 metres, and the WARC bands. Soon after that they installed a second station in another house about 150 metres away. Propagation from the island was not the best. Early mornings favoured VK and the Pacific. At a very low QSO rate, the afternoon produced big pileups from Europe and Japan. Weather conditions changed, fog set in and even rain, which is a rare occurrence in winter.

Everything was wet and water came through large holes in the roof. Windspeed increased with a heavy storm which prevented the team leaving the island on the scheduled day. They eventually left the island at daybreak on



Photo 2 Gunter DK2WH operating SSB from Penguin Islands ZSOPi. Photo: DK2WH



Photo 3 Penguin Islands ZSOP1. House No 1 with 4 el Yag1. The white on the rocks is not snow, it is strong smelling guano. PHOTO: BELTUN

5 August. After a 12 hour drive back to Windhoek, the team split up. James DJ0WQ and Peter DJ2ZS continued DXing in Walvis Bay, Roland DJ4LK had to catch a plane, and Gunter met his family and went on a safari to the Angolan border, operating as V51/DK2WH/p. The expedition made a total of 10,000 QSOs (SSB, CW and RTTY). Incidentally, it is quite possible that this was the last DXpedition from Penguin Island ZSOP1, because South Africa will hand over the sovereignty of Walvis Bay and the 12 guano islands back to Namibia on 1 March.

Christmas Island — VK9X — Update

In the 1993 survey conducted by "The DX Magazine", Christmas Island ranked 35 as one of the most wanted countries. It is anticipated that the successful operation of V19XN and VK9XO in December will have reduced the demand below the 50 mark by the time the next survey comes around.

Christmas Island has changed quite a lot lately. There is now a twice a week regular air service from Perth, a daily service from Indonesia, and regular services from Singapore.

The reason for this sudden interest in this 135 square kilometre island, which is 1400 km from Perth in the Indian Ocean, is gambling. On 18 December the Christmas Island Casino Resort was officially opened. Invited guests of the casino from Indonesia can stay up to five days at the resort without undergoing normal immigration procedures (no visa required). Amateur radio will not be the same again on this island where, in

December, hundreds of millions of red crabs emerge from the forest to lay eggs on the island's cliffs, and millions of dollars will be lost at the casino tables.

Peter I Island — 3Y0PI

As announced previously, this DX operation will commence on 1 February 1994. As at 14 November all the equipment was crated in Florida, USA and flown to Uruguay where it will be loaded aboard the icebreaker that will take the group to Peter I Island. In addition, another three tonnes of equipment, from European sources, is also to be loaded on the ship. In mid-January the whole team will fly to Port Stanley in the Falklands to board the ship. En route to their destination, they will operate /MM.

Latvia — YL75

Several Latvian stations used the special prefix YL75 to commemorate the founding of the Latvian Republic 75 years ago on 18 November 1918. The Latvian QSL Bureau is not currently active, therefore only direct mail will produce a special reply QSL card. Do not indicate call signs or any reference to amateur radio on the envelope, otherwise your QSL card might get "lost". QSL to YL75DX (see QSO schedule), YL75R J Baltins, PK 100, Riga-7, LV-1007, Latvia; YL75Z S Hochberg, PK22, Jelgava, LV-3000, Latvia.

Leones and Blanca Island — L4

Members of the LU4DKK Radio Club were active in November from Leones and Blanca Islands, Argentina. As quite a number of VKs have worked them, here

is the QSL address. The Manager, Box 134, 9 de Julio — 6500, Prov Bs As, Argentina, South America.

Northern Cyprus — 1B1NCC

This station was on the air from 15 November for two weeks. The station operated from the Turkish (northern) part of Cyprus, administered by Turkey since 15 November 1983. The DXCC status of this station is not known. Direct QSL to G0ITX with one IRC (donations are not requested). Bureau cards will be answered by G0ITX, the QSL manager, via the bureau.

Future DX Activity

- N2CQR/H18. Bill is an economics officer with the US Foreign Service and is stationed in Santo Domingo until 1998. QSL to William R Meara, 55 Waters Edge, Congers, NY 10920, USA.
- A71AN — Rashid — a new amateur licensed only since July 1993 is on 21190 kHz every day around 1100 UTC. QSL c/o Qatar Amateur Radio Club, PO Box 22199, Doha, State of Qatar.
- It was reported by various DX sources that JA3PFZ, in a QSO to G3HJC, said "At the recent visit to Mount Athos, due to a difficult situation, they were only able to make about sixty QSOs (CW SSB, RTTY)". JA3MNP went back to Mount Athos and has obtained further permission to operate all modes. This activity might eventuate in April this year.
- It is rumoured that the planned expedition to the Andaman and Nicobar Islands VU4 by VU2SMN and VU2NTA had the promise of financial support from the government. However, in the meantime, government money was spent on areas hit by the recent earthquakes. The earliest promised date for the VU4 activity is not before the end of March.
- It was reported on several packet DX bulletins that the proposed Iranian activity by EX0A and others had to be postponed because the border was closed due to several cholera cases.
- Jean J2BJJ will be active from Djibouti for the next three to four years. QSL to Jean Jacques Chatclard, Box 1076, Republic of Djibouti, Africa.
- Scott N7TNL is now active from Midway Island as N7TNL/KH4 and was worked from VK2 with a signal strength of 9. He will be active until 6 January. He is with the US Fish & Wildlife service. QSL to W100 or via the W7 Bureau.
- 9K2ZZ Bob is nearing the end of his stay in Kuwait. He is active from 160 to 40 metres. QSL to W8CNL.

- 3X0DEX in the Republic of Guinea is quite active on several bands. QSL to Box 104, F-22650, Ploupalay, France.
- A61AF is a new club station operated by three foreign hams in a Technology College. It is operational around 1300 UTC on Tuesday nights only. QSL to the club station A61AF c/o Dubai Mens College, PO Box 15825, Dubai, United Arab Emirates.

Interesting QSOs and QSL Information

- BA4AD — Davy — 14180 — SSB — 0957 — Sept — QSL to Davy, PO Box 085-227, Shanghai — PR of China.
- YL75DX — Yuri O 14180 — SSB — 1206 — Nov. QSL to Yuri Baltin, PK 265, Riga 50, Latvia LV-1050, Europe.
- WH0AAV — Jun — 14226 — SSB — 1159 — Nov. QSL to Juan Mercado, PO Box 1914, Salpan MP 96950 USA.
- 9X/DL80BY — Gisa — 14215 — SSB — 0544 — Nov. QSL to Hartmut Gumpert, C/o D Welle, Box 420, Kigali, Rwanda — Africa.
- VR6DB — David — 14277 — SSB — 0499 — Nov. QSL to David Brown, PO Box 13, Pitcairn Island, South Pacific, via New Zealand.
- VR2BH — Marli — 14195 — SSB — 1126 — Nov. QSL to KA6V Joan E Branson, 93787 Dorsey Lane, Junction City, OR 97448 USA.
- 8RIAK — Esmond — 14222 — SSB — 0549 — Nov. QSL to Esmond Jones, PO Box 10868, Georgetown, Guyana, South America.
- VR6ME — Mark — 14180 — SSB — 0443 — Nov. QSL to Mark Ellmos, PO Box 24, Pitcairn Island, South Pacific, via New Zealand.
- ET3BH — Bert — 14222 — 0611 — Nov. QSL to SM3EVR, Tord Julander, Box 547, S-86020, Njurunda, Sweden.
- SU2MT — Mohamed — 7056 — SSB — 1927 — Nov. QSL to Mohamed Tartousieh, PO Box 1616, Alexandria, Egypt.
- VR6CB — Clarice — 7043 — SSB — 0609 — Oct. QSL to Clarice, PO Box 11, Pitcairn Island, South Pacific, via New Zealand.
- VE8GO — Brian — 14243 — SSB — 0633 — Oct. QSL to Brian McKay, PO Box 565, Rankin Inlet, NWT X0C 0G0 Canada.

From Here There and Everywhere

- Yasuo "Zorro" Miyazawa JH1AJT advised me that he is the QSL manager for the following stations: XW8KPV, S2IU, JA7OWD/JD1, FK8EJ, ET3DX, 9E2A, E31A, ZK1XH, A35ST, 5W1IB, YJOAST, VE0MEA/KH, VE0MEA/FKB, VE0MEA/KH2 and others. His address is Yasuo Z

Miyazawa, PO Box 8, Asahi, Yokohama, Japan 241.

- As from 1 January 1994, the Moldavian radio amateurs will use the new prefix of "ER" instead of the old "UO". The address of the new Moldavian QSL Service Bureau is PO Box 6637, Kishinev, 277050, Moldova.
- ZL6RFA was a special event station in Taranaki/New Plymouth celebrating the Rhododendron Festival. QSL to NZART Branch 27, c/o 45 Robe St, New Plymouth 4601, New Zealand.
- Tony, A35UZ was on a four week vacation on various Tongan Islands. QSL to G0HUZ.
- For a few days Willis Island was activated by Michael as VK9WC. QSL to VK4AZM.
- Valery ER1A (formerly UO5ODA) wants his cards to be sent to FD1J.
- LZ1HA Todor Dikov advises that all direct QSLs for YASMM were confirmed. Anybody who has not received a card yet, should write again (with return postage) to PO Box 321, 1000 Sofia, Bulgaria.
- According to the "1993 Most Wanted Countries" survey conducted by Chod Harris VP2ML, Editor of The DX Magazine, the first ten most wanted countries are 1 — Peter I Island, 2 — Bhutan A5, 3 — Libya 5A, 4 — Andaman VU4, 5 — Heard Island VK0, 6 — Tunisia 3V, 7 — Yemen 4W, 8 — Tromelin FRA, 9 — Macquarie Island VK0, 10 — Mount Athos SWA.
- The ARRL DXAC (DX Advisory Committee) will vote on "QSL Guidelines" in January 1994.
- According to DXCC specialist Bill Kennauer K5FUV, the 3V8PS activity was the last known legal operation from Tunisia 3V8AA in 1983 was also good.
- Due to the increase in German postal rates it appears that the most economical way is to send two IRCs instead of "green" stamps for a direct QSL.
- HG27BCS was celebrating 275 years of the town of Bekescsaba. QSL to Janos Kulish HA8PO at PO Box 257, Bekescsaba, H-5601, Hungary.
- CQ8C is a special Portuguese call, in operation until 16 January. QSL to CT1EGW.
- John VK3KVO has passed on to me a letter received from Tom Tomorbaatar JT1BY, Box 470 Ulan Bator, 13, Mongolian Republic. Tom appears to be the QSL manager for a number of Mongolian stations. He requests a SAE with one "green stamp" for direct reply. He has the logbooks for the following Mongolian stations: JT1KAA (club), JT1T (used in contests), JT1AO, JT1CO,

JT1V (club), JT1BV, JT1BS, JT1CS, JT1BG, JT1KAI (club), JT7AA (JT7KAA), JT8AA (JT7KAA), JT1CD, JU83OC (1992-3). Tom is 26 years old, married, interested in radio since the age of 16 and active on the air since 1985. Tom's wife is a CBER and they have an 8 months old son. He is the foreign trade manager of a Mongolian trading company.

- Francis FT5YE leaves the French Antarctic station, Terre Adelie at the Dumont D'Urville Base, at the beginning of February. He will return to France to reply to the thousands of QSL cards which are waiting for him.
- Please note. The correct address of the Italian QSL Bureau is ARI, Via Scarlatti 31, 20124, Milano, Italy.

QSLs Received

Z31PK (4W YU5XVD) — OM3EY (3 W op) — BA4AD (5 W op) — A71BM (5 W op) N9NS/KH5K (6 M N9NS) — VE8GO (4 W op) — ZK1AT (6 W op) — ZK1DT (6 W op).

Thank You

Many thanks to the contributors to this column. All of you were very helpful, especially VK2DSL, VK2KCP, VK2KFU, VK2LEE, VK3DD, VK3KVC, VK4CY, VK4OD, VK4OH, VK6PY, VK9ND, JH1AJT, VK6MW and publications QZ DX, The DX Bulletin and DX News Sheet.

* PO Box 93 Durral NSW 2158

MT

WIA News

New UHF DX Record

Two US amateurs, Paul Lieb KH6HME and Chip Angle N6CA, set a new terrestrial distance record of 3973 km for the (US-allocated) 902 MHz band, working between Hawaii and California (a legendary path for this sort of activity).

Making contact on CW at 0136 UTC on 23 August last, signals were reported as "just out of the noise". Two metres was used for liaison. They made an unsuccessful attempt to span the same path on 2304 MHz. The 902 MHz equipment used for the record-breaking achievement was designed by N6CA, according to the *Westlink Report*, No. 658, of 30 September.

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

A H (Aub)	MILLER	VK2EEX
R C (Bob)	SMITH	VK3YU
R H (Dick)	TURRIN	W2IMU

C R (Russ) WATT VK2WT

Russ was born in London in 1904, where his father was studying to become a doctor, and came to Australia in 1907 following his father's graduation.

Dr Watt set up his practice in Tenterfield and became one of the best known and revered doctors in the north of NSW, where he purchased a property "Warrenfels".

From an early age Russ accompanied his father on his rounds which included trips into the surrounding country for distances up to 50 or 60 miles at all times of the day or night. When old enough he was the driver for his father, firstly by horse and sulky and later by the early model cars.

Russ eventually took over the management of Warrenfels and, together with his two sons, produced some of the finest wool in Australia, from their Merino sheep, topping markets on many occasions.

Russ married Margaret Kennedy in 1937 and in 1940, Anthony was born followed by David in 1948. There are three grandchildren, Andrew, Felicia and Christopher. Christopher hopes to qualify for and eventually use his grandfather's call sign VK2WT.

Amateur radio was a prime interest of Russ from his school years and in 1925 he obtained his amateur operator's licence and became a member of the Wireless Institute of Australia. Using home brew equipment Russ worked the world with four watts collecting many thousands of QSL cards, having at one stage contacted every country in the world. In later years he attended many call back sessions and was present on many regular nets.

Among his home-brew achievements was the construction of a metal lathe, which he frequently used. He built his own variable condensers, cutting sheet metal from the early petrol containers. A burnt out generator was worked over and rewound to provide, as required, 50 volts DC for the home lighting plant, 240 volts AC for the pump on the dam and 110 volts DC for the home washing machine and electric iron, for Margaret. When the 240 volt AC was provided from the town, Russ continued to run the house from a 110 volt transformer, for reasons of safety.

For years he helped install, service and maintain two-way equipment for the local council, ambulance and other local users. Russ was loved and respected by all who knew him and will be sorely missed in the world of radio.

He died while watching Anthony and David rounding up the sheep on 18th October last.

Bill Field VK2EMX

Richard Herbert (Dick) Turrin W2IMU 1925-1993

Dick W2IMU, who passed away on 11 November, was one of my (and many others) greatest friends and advisers on technical matters, especially EME communications. Dick was born and died in New Jersey, USA and was employed by Bell Telephone Labs.

He was an extra class licensee, as well as a BSc and an MSc in electrical engineering and a truly compassionate person who always went out of his way to help others.

Due to his encouragement, help and advice I won the ARRL Technical Merit Award in 1967 for EME two way contacts on 2 m, initially with Crawford Hill VHF Society K2MWA/2 operated by Dick! On my visit to the USA in 1968, Dick, Society members and a live kangaroo greeted me.

Apart from many technical articles in

American magazines, Dick wrote his classical EME notes, starting 25 years ago, and they are still an important information source. Many amateurs worldwide received lengthy answers to their many questions on moonbounce operation, including VK and ZL 144, 432 and 1296 MHz problems.

Dick visited VK in 1979 to solve an antenna problem for the CSIRO and was guest speaker at a packed EMDRC meeting. His XYL Noranne K2OJO predeceased Dick in 1978. He is survived by one daughter and two sons. Dick was partially crippled by a stroke in February 1993.

Vale a true gentleman and friend.

Ray Naughton VK3ATN/VK3NA

R C (Bob) SMITH VK3YU

My father died recently following a tragic accident. He was an active radio amateur in both voice and Morse code.

He enjoyed the 10 metre band and won quite a number of competitions for the Oceania and Australasia regions.

Many years ago he lectured at night classes at the Marconi School of Wireless for 14 years, and his knowledge was self taught.

On 30 September he was delivering Meals on Wheels. As he was standing at the back of his car getting out the next meal he was hit by another car illegally travelling in the parking lane. He died in intensive care at the Box Hill hospital on 7 October 1993.

Barbara Pallot

ar

Repeater Link

*Will McGhie VK6UU**

FM 828-2

This is the second circuit drawing of the popular FM 828 used in the majority of repeaters in Australia.

This month's circuit is of the intermediate frequency preamp, limiter amplifier and coincidence detector. The circuit provides the 10.7 MHz selectivity, 10.7 MHz amplification and demodulation to audio.

If the circuits are printed to the same scale in *Amateur Radio* then they will line up and could be placed end to end, inputs, outputs, power and earth all meeting. If space requirements do not permit this, I can make the circuits available to you at the same scale.

All these circuits were produced on

computer using the CAD program *Draft Choice*. If you would like a copy of this CAD program and the FM 828 computer circuits let me know. Not all the FM 828 circuits are completed yet, as they take considerable time to draw onto computer. These circuits can also be made available via packet in 7 Plus format.

The CAD program *Draft Choice* is an excellent circuit drawing program and being shareware is easy and cheap to obtain. If over amateurs were to agree on a CAD program for circuit exchange, this would be my recommendation.

If there are any errors in the circuits, please let me know.

*21 Waterloo Cr Leamurda 6076

VK6UU @ VK6BBS

■

International Amateur Radio Union Monitoring Service (IARUMS) — Intruder Watch

Gordon Loveday VK4KAL*

The International Amateur Radio Union Monitoring System

This comprises the three Regional Monitoring Systems. In turn the RM Systems are made up from the national society monitoring systems.

The present IARU MS is the culmination of many years of work by a few dedicated amateurs. They had struggled on, often in the face of apathy and sometimes hostility. These few "intruder watchers", as they were then known, had the support of a few far-seeing administrators in two or three societies and in the IARU, who realised that the amateur bands were not a limitless resource.

We have to protect the frequencies allocated for our use. With the increasing demands for spectrum space, and the tendency of some administrations to ignore their responsibilities under the ITU Convention, it is evident that the Amateur Service must have a strong, unified and effective monitoring system, if it is to retain its frequency allocations. It must present factual, authoritative information about "intruders" for further action.

The monitoring system is made up of volunteers, whether they be amateurs or SWLs. Experience will range from a few weeks to many years. Regardless of their level, all monitors are capable of providing useful input to the monitoring service. Being volunteers, monitors must be free to dedicate a minimum of two to three hours each week. It would be advantageous for monitors to cover only one band, resulting in an intimate knowledge of that band. Likewise, some may wish to specialise in A1A or F1B modes only. This is encouraged for the same reason as above.

Basic equipment is just that. A receiver (or transceiver), an antenna (beams are handy as are beam headings), a pair of ears plus the operator's ability to learn the limitations of each. Observers please note, your Maidenhead grid square location would be much appreciated, or your Latitude and Longitude (this should be available from your local council). This gives the Spectrum Management Agency (SMA) Monitoring personnel a starting point to re-check our observations, so the necessary action can be taken.

Signal strengths are also a help. For those without a beam, I would appreciate

a drawing of your antenna set up showing the direction of, for instance, a dipole. This will only be needed once, unless you use a new dipole. The national co-ordinator will note this and your locator for further logs. I do require advice of your type of receiving equipment, for various reasons. Not all receivers have the same IF frequencies.

Of course I want frequency, time in UTC, date, mode, and an ID if you're so lucky. Frequency preferably should be measured against a recognised frequency standard if available or a crystal calibrator to check dial accuracy. Do not use your clarifier.

It is preferable that reports be typewritten. If this is not possible, hand

written CAPITAL LETTERS should be used. This assists in correct information being transferred to the summary, which is forwarded to the IARU Region 3 co-ordinator, the SMA, the state co-ordinators and WIA Federal.

The monitoring system in VK has plenty of opportunity for observers to contribute some worthwhile assistance to the world wide organisation. The IARU Monitoring Service defines a route by which the ordinary radio amateur in any country has a means of access to the international bodies in cases of harmful interference. The system is not perfect but it represents the best we have at this time. It does provide a reporting means when the normal procedure of appealing to a national administration is found not to work.

When can I see your first log??

*Federal Intruder Watch Co-ordinator,
Freepost No 4 Rubyvale QLD 4702
or VK4KAL @ VK4AUN-1

QSLs from the WIA Collection

Ken Matchett VK3JTL* Honorary Curator WIA QSL Collection

Wake Island

If we were to draw a line between Hawaii (which is just about in the middle of the Pacific) and the Philippines, Wake Island would be approximately half way. It, like many Pacific islands, is an atoll. The island, with an area of only 8 square miles, was discovered by Mendana in 1568 and "re-discovered" by Capt William Wake of the British schooner "Prince William Henry" in the year 1776. Commodore Wilkes, an American, fixed its position in 1840. The island,

uninhabited when discovered, was annexed by the USA in 1899 and used as a cable station. Later it was used as a stop-over for Pacific flights between Honolulu and Guam. In fact, Pan American Airways developed the airstrip in 1935 and used it for its China Clipper Service. One QSL in the WIA collection goes so far as to describe Wake Island as the "Aviation Hub of the Pacific". (It was for a QSO dated Dec 1964).

The island was proclaimed a Naval Defence Area in 1941, many workers



WAKE ISLAND
Report **EST-459** Time **1105** Date **9/7/37** Freq **1420**

K6LHA



XMTD **616/10-20** **W. R. M. Matchett**
QSL **R.M.HENSEN, C-0 PANAMERICAN AIRWAYS,**
73 OM. Tm for QSO. QSL ?
ALAMEDA, CALIF.

being sent there to build up the air facilities and the submarine base. However, no sooner had several facilities been established than the Japanese attacked, actually only a few hours after the bombing of Pearl Harbour, Hawaii on the 7th December 1941. A few hundred marines and airmen on the island repulsed a Japanese naval task force and even sank an enemy cruiser, but the resistance did not last. Over 1000 Japanese troops landed on Christmas Eve 1941 and took control of the island. Lt Col W L J Bayler and Cecil Carnes give an interesting account of the experiences of the Wake Island personnel under Japanese air attack (and later, naval bombardment) in their book "The Last Man off Wake Island" just before the island's surrender. The island remained under Japanese occupation for the duration of the Pacific War since there was no attempt by Allied Forces to re-take the island. Although in Feb 1942 Wake Island was raided by US Navy aircraft, there was none of the bloody fighting with which we associate some of the other Pacific islands such as Iwo Jima and the Solomons. The island of Wake passed into Allied hands upon the surrender of the imperial Japanese forces on 4 September 1945.

K6LHA

The letter K was originally allocated by the ITU to both German and United States ship and land stations during the years before World War 1, but was not used by amateur (experimental) stations at that time. These generally used their own initials for their unofficial call-signs. Although the system of "intermediates" (See *Amateur Radio* August 1988 and August 1989) did include a few US

possessions such as Hawaii (OH), Canal Zone (NZ), and Alaska (NA), there was no allocation to Wake Island. The modern prefix system, introduced in early 1929, assigned the letter K to American possessions other than mainland USA (to which the letter W was assigned). Thus we had KA (Philippines), K4 (Puerto Rico), K6 (Territory of Hawaii) and K7 (Alaska).

By the outbreak of World War 2, several K prefixes had an identifying letter, eg KG6 (Jarvis Is) and KF6 (Baker Is) but several "countries" such as Alaska, Hawaii and Puerto Rico retained their earlier prefixes. Up to the year 1938 the prefix K6 was shared by both Hawaii and Wake Is. The January 1939 edition of QST lists KC6 as the prefix for the Wake Group (sic). There could have been very few stations using such a prefix from Wake Is. The magazine "Radio" in the June 1939 edition does, however, mention activity by

station KC6BNL on Wake. After the war the KC6 prefix was allocated to the Caroline Islands.

After the outbreak of war, US hams were permitted to conduct QSOs with US external possessions but from June 1940 were forbidden by the FCC to contact foreign stations (although the US was not then at war). The accompanying QSL, K6LHA, was one received by well-known DXer, Ivor Stafford VK3XB on CW for a QSO in 1937. The sender was an employee of Pan American Airways.

KW6CGA

After the war, so great had the numbers of US hams increased that K prefixes had to be used for mainland US stations. By then, all US external possessions having also the K prefix were further identified by an accompanying letter, eg K6 (Hawaii) changed to KH6. Alaska (K7) changed to KL7, and so on. At the same time, Wake Island assumed the KW6 prefix. The accompanying QSL KW6CGA sent to the author directly from the island in early 1961 clearly shows the geography of the island. The island is in reality three islets. The largest one is Wake and is the site of the large and strategic airstrip. To the north lies the small islet of Peale on which Pan American Airways built its hotel and was the QTH of amateur station KW6CGA. The other islet to the south is Wilkes Is. All the islets are protected from ocean movements by a coral reef that almost circumscribes the island group. Peale Is owes its name to the naturalist who accompanied Wilkes on his exploration of the Pacific. One of the islands has been investigated fairly recently as a possible home for the natives of Bikini Atoll which at present cannot be re-occupied because of radiation hazard.

W7KHN/KH9



WAKE ISLAND - MID PACIFIC

WHERE AMERICA'S DAY REALLY BEGINS

MBR SAN DIEGO DX CLUB 73, TOM MORTON

U.S. COAST GUARD LORAN STATION, P. O. BOX 7, WAKE ISLAND, PACIFIC



KW6CGA

W7KHN/KH9

The prefix KW6 and the rare WW6 (for US novice licensees) remained in use until the mid 1970s when KH9 was allocated. (Prefixes NH9 and AH9 have also been used). The first KH9 was Dan Lynch WD8CDU portable on Wake Is. The accompanying QSL, W7KHN/KH9, was for a QSO in February 1980 and was received by that well-known Old Timer (since a "SK"), George Luxon VK5RX. The significance of the words "Where America's Day really begins" lies in the fact that Wake Is, having a longitude of 166 degrees east, is just west of the International Date Line where a new day begins.

Since 1974 the island has only been used as an emergency stop-over for commercial aircraft. Today the US uses the island as a weather station. It is occupied principally by US Air Force personnel and some civilians engaged in special projects such as oceanographic and meteorological surveys. Prior permission is necessary before any landings on Wake can be made.

Author's Note

If you enjoy reading this series of articles on the history of amateur radio through QSL cards, perhaps you would like to make a donation of cards to the WIA collection. All cards are welcome but rare DX, pre-war cards, special issue (commemorative) QSLs are most sought after. Please contact the author of these articles who is also the honorary curator of the collection. Club secretaries should note that displays of QSLs are available on loan for club meetings, conventions, etc.

The WIA would like to thank the following for their kind contribution towards the collection (supplementary list): Neil VK6NE, Tom VK5TL, Dick VK4KEZ, Jim VK3AZT, Mike VK6HD, Harvey Bay Amateur Radio Club, and Austin VK5WO.

*4 Sunrise Hill Road Montrose VIC 3785
Tel 03 728 5350
ar

VHF/UHF An Expanding World

Eric Jamieson VK5LP*

All times are UTC

Beacons

In response to my requests for the beacon network to be completed, I have been advised by John VK3KWA (VK3ZJC) that Ron VK3AFW is testing the installation of a two metre beacon at the Monash University to provide a signal from the Melbourne area. The beacon will run 15 watts to a halo antenna 80 m asl. Details later.

Steve VK3OT advised me he would be willing to provide a tower and site for a beacon in western Victoria if someone will provide him with the beacon as he doesn't have the time to build one. Any offers?

Trevor VK5NC reports that the Mount Gambier beacon on 144.550 is receiving its final test run and should be operational before Christmas and certainly by the time you read this information. The beacon will sign 'de VK5RSE Mount Gambier QF02' followed by key-down for 30 seconds after which the minute cycle will be repeated.

So it appears that it won't be long before southern Australia will again have access to propagation warning devices and that's good news.

A consistent six metre beacon into VK3 and VK5 has been VK4RGG on 50.058, obviously a satisfactory Es distance. Of course, Channel 0 from Toowoomba continues to destroy large sections of 50 MHz with its massive signal under Es conditions.

Whilst not a beacon, a station to keep in mind when beaming inland is Fred Baker VK2YZU at Peake Hill, 412 km west of Sydney and near Dubbo. Fred is operational on six metres with 50 watts and two metres with 100 watts and using DL6WU antennas.

Six metres

Responding to my request, Steve VK3OT has provided me with an overview of activity on six metres for November, the

following being typical. 4/11: 0330 43/44 MHz Asian telephones with afternoon TEP flutter and 49.748 MHz TV video by scatter; 0345 JA2IGY/b to 419 by scatter, 0350 49.750 TV 59; 0700 46.240 TV auroral scatter; 1100 VK2QF, VK2GP, 1150 VK4RGG/b 559. 5/11: 0345 JA2IGY/b by scatter; 0400 JH8ZND 319 on 50.480, 0423 beacon 43.520 drift net fishing KX320 339; 0436 Thailand TV 48.2602/48.2604, 0440 Laos TV 49.7604; 0450 JA2IGY/b 559, 0700 telephones 43-45 MHz; 0730 Chinese telephones 49.730 and 50.076.

6/11: 0138-0600 VK4BRG/b, VK4IAM, heard VK4AMK, LR, HK, VK2ZXC, VK3LKK, VK4ABP/b, JA2IGY/b, JJ1WKK, 49.750 TV, VK4SIX Mt Isa, JA9LTD, JE3EJC, JH4JPO, JR2ENV, JA7s. 7/11: 0200-0545 VK4ABP/b, VK4RGG/b, VK4 stations working VK6RO, VK8YU, VK6JJ, VK6LK, JROYYE/b, JH1WHS, JA7ZMA/b, JA2IGY/b, JA5GJN/4, JA7ODY, JA5CMO, 49.750 TV, VK4SIX/b, JH4JPO, at 0545 55.250 TV E3 from north west — Philippines/Malaysia. 8/11: 1000 to 1122 ZL2, ZL3. 9/11: 1000 HL9UH (also to VK2 and VK7). 12/11: 0300 to 0330 JA1, 2,6 and HL9UH.

It has also been noted that VK9YQS on Lord Howe Island has been worked by a number of stations including as far south as to VK3DUT, VK3AMK and VK5BC. I am of the opinion you will be hearing stations from the Pacific islands quite frequently during the next few years as the Es improves on the downside of Cycle 22

Six metres EME

With F2 conditions deteriorating, Steve VK3OT looked for other conquests and turned to six metres EME using his M2 antenna. On 6/11 at 1515 W6JKV was heard calling VK3OT at 519, 1535 Oscar report from W6JKV but unable to conclude QSO due to QRM. On 7/11 at 1530 Steve kept a sked with W6JKV on 50.0535 MHz and at 1533 copied callsign sequence "VK3OT de W6JKV" For 17 minutes Oscars and Roger Oscars were exchanged. At 1554 K6QXY called in sequence with Oscars and Rogers copied both ways. On 8/11 at 1617 QSO K6MYC 529. 9/11: 1701 K6QXY. 10/11: 1716 K6QXY.

So the first contact was on 7/11 with Jim W6JKV, followed by Bob W6QXY and then Mike K6MYC. Moonset sked with OH2BC on 12/11 but although Steve could copy OH2BC, the reverse was unsuccessful. Steve's equipment consisted of a TS670 to a Mirage A1015

**When you buy something from
one of our advertisers, tell them
you read about it in the
WIA Amateur Radio Magazine.**

and a pair of 4/400A at 1 kw with high power permit, mast-head pre-amp on receive

As far as I am aware these are the first six metre EME contacts from Australia. It will be interesting to see how many countries Steve can work using EME as that mode of operation is on the increase in overseas countries. Good work.

WORLD FIRST

In what is believed to be a world first, six metre contacts have been made with mainland Antarctica from another continent, Australia. Three SSB contacts occurred on 19/11/93 to Mark VK0AQ at Casey Base with the first being by Steve VK3OT at 1209 UTC with signals 5x5, followed by Ray VK3LK at 1215 5x2 and Trevor VK5NC at 1218 5x2, all on 50.120 MHz. The beam heading from Australia was between 195 and 200 degrees.

Credit for the initiation of these contacts must go to Hugh VK5BC who was in contact with a ZL station around 0938 and mentioned he was copying a beacon VK0AQ on 50.200 and thought it was originating from Macquarie Island. Apparently this information was heard by Mike VK3BDL and Jim VK3AZY, then by the ever watchful Steve VK3OT, who found the beacon and began to tape record its 559 to 579 signals. Unfortunately, Hugh did not work VK0AQ.

Then followed a great flurry to try and organise Mark VK0AQ to come on air but one of the few people to have Mark's telephone number was me, and where was I — out at a meeting! Eventually Steve tracked down a number and phoned Mark and a two-way contact resulted at 1209. So the beacon had remained audible for two and a half hours with its strongest signals between 1000 and 1100. Attempts were made to raise other stations on the air but for various reasons, it seemed people were not available, so there were few to alert. Had I been home I could have saved about two hours of wasted time by alerting Mark myself.

According to Hugh VK5BC the band had been open most of the day to all of Australia except VK8. In addition contacts had been made with VK9YQS on Lord Howe Island and ZL2, 3, 4. The beacon signal from Casey appeared to have some auroral content and probably arrived in Australia with the assistance of Es. Australia has maintained six metre beacons on the Antarctic continent for more than 20 years and there have been occasional reports of hearings when the beacon was located at Mawson, but no

actual contacts. Unless there have been unreported contacts from South Africa or South America to Antarctica, then these contacts must rank as the first on six metres. Congratulations to all involved.

Incidentally, for the purposes of receiving the Worked All Continents Award, it is just as well that a contact is not required with Antarctica or none would have been issued for six metres. With the above contacts, Steve VK3OT and Trevor VK5NC now qualify as having worked a seventh "continent," and would appear to be the only operators in the world to do so. It's a humbling thought.

From Europe

Ted Collins G4UPS in his monthly report says he has been conducting daily six metre tests with G3CCH at 350 km and SM7AED at 1200 km with some surprising results. Although Arne SM7AED is not active every morning, on each morning that he is available they have completed QSOs. Ted believes they are communicating via extended tropo or forward scatter mode. Signal reports are usually around 559 to 579. The Swedish contact seems quite a good effort to me as it is roughly the distance between Sydney and Rockhampton. Perhaps Mike VK2FLR and Lyn VK4ALM could try the path for regular contacts!

It appears from Ted's October report that either six metre stations are losing interest or conditions have been poor, although there appear to be at least ten beacons here. Prefixes mentioned include 4N1/b, 5T5, 7C7, 9A3FT, 9H1, 9H1/b, 9H5, A22, CQ7CBI, CT0/b, CT1/b, DF7, DL4, EA3/b, EH1, EH3, EH6, EH7, EH8, EH9, F5, F6, I2W, IC8, IK0, IK8, IT9, OE4, OM3, OZ4, OZ6/b, OZ7/b, S55/b, S59, SM7, SV1, SV9/b, YO2, YT1, YU1, YU1/b, Z23, ZS6 for a total of 41 which would be excellent by Australian standards!

The Perth Scene

Graham VK6RO reports that September and October 1993 was a poor period for Perth. 49.750 TV was heard on 19/8, 10/10, 18/10, 20/10, 24/10, 28/10, 48.250 TV on 13/10, 14/10, 27/10. On 14/9 57.250 TV from Port Pine.

A reasonable opening occurred on 28/10 at 0728 with JA beacons on .008, 017 and 027. 0818 phones from Asia on 50, 52, 53 and 55 MHz, 0828 48.2396 and 48.2604 T.V., 0829 HL9UH, 0833 JK1PUI, 0841 VK6RJ at Broome, which Graham says is DX for Perth! Other stations on during the 28/10 opening included VK6YU, VK6HK, VK6KRC and VK6JJ. Graham comments that in Perth a few years ago, they would hear the 49.750 TV for up to 12 hours a day, but not now.

Graham also says that he has a 1993 Japan Repeater Directory in which details are given for 2 repeaters on 29 MHz, 792 on 70 cm, 632 on 23 cm and 95 on 2400 MHz. That's a lot of repeaters!

Microwaves

Information I had to carry over from last month was contained in November QST and "The World Above 50 MHz" by Emil Pocock W3EP. Details were given of the Trans-Pacific Record contact on 902 MHz.

Shel N16E/KH6 observed that the tropo path to California was good early in their summer and for the first time in seven years he heard FM broadcast stations from northern California and these signals were strong on 18/19 June, 9/10 July and 4/5 August. It is believed many two metre contacts were made between Hawaii and the mainland during those periods.

Chip N6CA on top of Palos Verdes near Los Angeles decided that 23/8 was the day, so Paul KH6HME went to the 2500 metre operating site on top of Mauna Loa and found signals strong on 144 and 432 MHz across the Pacific. At 0136 the pair made a marginal contact on 902 MHz CW with the distance being 3882 km. Congratulations. The pair tried for four hours to bridge the gap on 2304 MHz but were unsuccessful.

N6CA designed and built the identical stations used at each end, consisting of 12 watt transverters, receivers with a 0.6 dB noise figures and four metre loop yags. For them, the remaining challenge is 2304 MHz, and it seems only a matter of time before they wrench that record away from Reg VK5QR and Wally VK6WG, the present record-holders.

24-241 GHz Work in Denmark

Emil Pocock W3EP writes that during the annual Danish GHz Activity Week, June 6-12, northern European microwave enthusiasts recorded numerous firsts, according to Steen Gruby OZ92I. Steen estimates that more than 400 QSOs were made on 10 GHz and up, including Danish firsts on 145 and 241 GHz. Skagen, which sits near the end of a peninsula on the Danish far northern coast, served as the centre of operations.

Most of the activity was on 24 GHz, because 18 members of the GHz North Zealand Work Group and the PROCGM Amateur Radio Club had just completed 24 GHz transverters. Built from designs developed by OZ1UM, the narrow-band transverters run about 50 mW with 6 dB noise figures and small dish antennas. The results were spectacular. OZ/DB6NT and OZ1UM made a 208 km SSB QSO with 53/56 reports on the first day of the tests, and by the end of the week most of the 24 GHz stations had made contacts in the

200 km range. Attempts to complete paths to Norway and Sweden failed, even though LA/OZ4PV and OZ5UJ made a 355 km contact on 10 GHz.

OZ1UM and OZ/DB6NT made an 8.8 km SSB QSO on 76 GHz, but there were no other 4.4 mm stations and the weather was poor. Both stations ran a few microwatts to 25 cm dish antennas.

Two pairs of operators, DB6NT and DF9LN at one station and OZ9ZI and DJ5HN at the other, completed several 145 GHz contacts on June 9, including a 3.1 km QSO across open water. These were Danish firsts on that band. Equipment resembled Gunn oscillators running about 5 microwatts. DB6NT and DF9LN used similar transverters on 241 GHz to complete a 0.5 km contact across the Dunes at the Skagen site. DF9LN and DJ5HN assisted.

These tests represented remarkable achievements, not just for the distances achieved (which are quite commendable for average weather conditions), but also for assembling gear on four bands above 24 GHz!

I have included the above information in some detail because it informs Australian microwave operators of trends overseas and this should spur them on to move further into the microwave region than 10 GHz. I am happy to include reports of any such activity in these columns. Due to my physical limitations I need help to do it, but I am eagerly looking forward to the day when I can operate on narrow-band 10 GHz. My GTH is well situated as an anchor point for stations operating portable.

First Worked from Australia

Ever so slowly, as more gaps are filled, this list is nearing completion. The previously published lists, although pro tempore, are already creating interest and in addition to *Amateur Radio* will eventually appear in the *UK Six Metre Group News Magazine*, so I have to get it right. My one regret is that I know of several operators, who, for their own reasons, have declined to add their call signs to the list, which means we are missing details of certain essential contacts; but that is their prerogative and I respect their decision.

General News

I note from *CQ ham radio* sent to me by Graham VK6RO that, during the northern hemisphere summer, JA stations had a much restricted number of prefixes to work in comparison with a few years ago under F2 conditions. During June, July and August, prefixes contacted/heard included: 9M-TV on 53.740 and 53.760, AL7, BT4, BV0, BV2, BV6, BV7, BV8, EK0,

HL0, HL1, HL2, HL3, HL4, HL5, HL9, JD1, JT1, KC6, P28, VK4TV, VK4, VK6, VR2, VS6, VS6/b. That's 13 countries and 25 prefixes.

What I do find interesting are the seven HL areas worked whereas about the only station we hear is Louis HL9UH. Possibly Korea is within single-hop ES distance from Japan and most antennas are pointed there. Also, I was unaware there were so many BV prefixes.

Keep in mind that the Ross Hull Contest extends until 1800 on 16/1/94 and on that last weekend the VHF Field Day Contest runs in parallel with the Ross Hull. Details were in December *Amateur Radio*.

For those who live in southern climes, remember that the last week or so in January or early February are recognised as periods when enhanced conditions often prevail across The Great Australian Bight, allowing contacts to Wally VK6WG at Albany (and any others who might appear), on the bands 144 through to 2304 MHz and possibly higher if conditions and equipment permit. Also remember that such conditions can work both ways, ie from Adelaide to the west and also to the east.

Watch the weather maps for a large, relatively stationary, high pressure system with a centre pressure reading of 1032 hectopascals or higher, the centre situated well down in the Bight with the upper isobars extending right across Australia, and these having pressure gradients of around 1024 hectopascals, even better if that figure is higher. With such a system some of the bands can remain open for up to four days.

Closure

I hope that 1994 will provide plenty of DX openings and six metres will produce some new countries for you — don't write the band off, its fascination comes from its unpredictability.

Closing with two thoughts for the month:

1. Real religion is a way of life, not a white cloak to be wrapped around us on the Sabbath and then cast aside into the six-day closet of unconcern, and
2. Ever notice that in some shops you have to serve yourself and in others they hire salespeople to ignore you?

73 from The Voice by the Lake.

*PO Box 169 Meningie South Australia 5264

Pounding Brass

Stephen P Smith VK2SPS*

Part two of "How the Telegraph Came to Australia"

The colony of NSW was the next in line to adopt the telegraph. Tenders for construction of the line from Liverpool to Albury were arranged in May 1857, while the NSW Government undertook the erection of the twenty mile line from Sydney to Liverpool itself. The line opened on the 30th December 1857.

Under Governor Denison's watchful eye the first message was sent "Can you read my writing?" No answer was received for several minutes. Again the message was repeated. An answer finally arrived that the pen of the recording instrument at Liverpool had broken and had to be repaired with great haste.

Despite human inexperience, NSW was soon ringed with telegraph systems, covering a wide area of countryside.

Queensland, as an independent Colony and separated from NSW, adopted the telegraph in 1861. A tender for the construction of a line from Brisbane to NSW was undertaken by Messrs Brown at a cost of 38 pounds 5s and 6d a mile, and the line was ready for operation at Ipswich, twenty five miles down route from

Brisbane in April 1861. The line to the border was completed that same year.

Eleven years after McGowan's initiative, several thousand miles of Morse's lightning lines silhouetted the Australian countryside. Over long distances repeaters were installed. Initially, human operators read the incoming Morse signals and re-transmitted them on to their destination.

Tasmania had a telegraph line from Hobart to Launceston (internal communications) which was completed in 1857 by a firm of Canadian contractors, Messrs Butcher, Estage & Carroll, and funded by the Government. The major concern was how to link the continent with Tasmania. Technology of submarine cabling, formidable and expensive, was in its infancy at this stage. It would be the only means of linking Tasmania to the continent. Many soundings were taken in Bass Strait over the following months until a suitable route for the laying of the cable was found.

Meantime, the Victorian and Tasmanian colonies agreed upon sharing costs for this mammoth task. Cost for cable was set at 45,000 pounds, and provided for 240 miles of cable with a single copper

conductor armoured by iron wire. This was being manufactured in England by J H Henley. The cable was completed in 1858, and reached Melbourne, aboard the ship SS "OMEO" in 1859.

In July, the SS "OMEO" and the SS "VICTORIA" left Victoria from Cape Otway and began laying the three quarter inch thick telegraph submarine cable over the stern of the vessels. Paying out of the cable was halted at intervals to join the cable ends. The vessels laid just over 117 miles of cable stretching from Cape Otway to King Island, Three Hummock Island, to Circular Head, Low Head and finally to Launceston. This was the

longest laid cable at the time anywhere in the world. The line was officially opened on the 18th August 1859, a great engineering feat taking just over 6 weeks to complete.

The last colony to adopt the telegraph was Western Australia. A Perth newspaper proprietor Edmund Stirling approached the Colonial Secretary Barlee, offering to build a line from Perth to Fremantle, if the Government would supply and erect the telegraph poles. Barlee agreed and would provide convict labour for the erection of poles and wire. Western Australia became the only colony to employ convict labour in the construction of the telegraph line.

The first telegraph pole was erected in Perth on 19 February 1869. The first message sent was by James Flemming (an ex convict) on 21 June 89, congratulating the inhabitants of Fremantle on this annihilation of distance between the capital and the port (distance was only 12 miles). Further private initiative would push the lines outward from Perth.

This concludes the series on early Australian Telecommunications. Next month we will cover different types of code.

*PO Box 361 Mona Vale NSW 2103

af

Over to You — Members' Opinions

All letters from members will be considered for publication, but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Why Do I Bother?

As the VK9/0 QSL Manager, many and varied are the ways of forwarding cards to operators that I use. Mostly I seem to have been very unsuccessful in receiving any response from the receivers of the packets of cards that I forward to them. My pleadings for information about their operations, or requests to prepay postage, or in some cases to repay postage costs incurred, fall on deaf ears.

But this week I received a card via the VK6 Bureau which almost turned me off. QSLing in general.

In December 1987 a Canadian operator on Cocos Island made a good number of world-wide contacts. Eventually, by September 1988, a small bundle of cards had accumulated in the VK9/0 Bureau for him. These were duly despatched to his QSL manager in Canada, with a QSL card from me and a request for an indication whether he wanted Bureau cards or not.

No reply was received.

Later, and possibly this is where I made an error of judgement, two further bundles of cards were sent, the last in March 1991. No further exchange took place until this week, when a card arrived for me via the VK6 Bureau, nearly six years later.

But should he have bothered at all with the Bureau? After all, he probably said, "QSL direct to my manager VE3MMB", which I probably have overlooked. Should I have posted back to the various Bureaux those cards which the VK9/0 Bureau received? Who pays what cost?

What do you glean from this? If the operator says "QSL via manager or direct", then DO NOT use the Bureau!

When did you last check to see if your Bureau manager has done anything with your cards for V85, 6V, 9G, BY, C9, and many others too?

Nell Penfold VK6NE
2 Moss Court
Kingsley WA 6026

6 Metre First!

May I thank all of those involved in successfully making two-way 6 metre contact with the continent of Antarctica on November 19th. Two other local amateurs, VK3LK and VK5NC share the privilege and, of course, Mark VK0AQ the operator at the other end (Casey Base) who, once alerted, was at the 6 metre station immediately. I would like to thank Eric VK5LP, who is involved as both Mark's QSL manager and as my personal friend. Eric undertook to telephone Mark after the opening died down and confirm that the contacts had taken place and then transfer those details to the VK0AQ cards which were issued the same week. Eric's involvement effectively legitimises the contacts.

Soon after the contact both the VHF and DXCC desks had received enquiries as to whether contacts from Antarctica counted as a country, because VK0 Antarctica does not appear in the listing of the '93 callbook. I can assure you that the continent of Antarctica is a separate country for DXCC purposes and is mentioned in the footnotes on page 43 of the callbook.

Working Antarctica is the culmination of 20 years of effort on 6 metres for me and is officially country number 100, occurring just 4 days short of 20 years,

when I worked Ron VK0WW at Macquarie Island on 23/11/73.

There have been many letters and packet messages of support from overseas, both to me and to Australian 6 m operators generally. Trevor VK5NC and I have joined an exclusive club of TWO, to actually work every continent on 50 MHz and, together with Ray VK3LK, we are the only operators to have successfully worked Antarctica from anywhere. This information is based upon the 200 or so applications for DXCC on 50 MHz submitted to the DXCC desk.

From an Australian perspective, it is a fitting end to Cycle 22 for us all and puts us well in the forefront of 50 MHz development, with the highest number of countries contacted on the band in the world. Good one Australia.

Stephen R Gregory VK3OT
PO Box 622 Hamilton VIC 3300

af

**Repeaters —
additions, deletions,
alterations. Have
you advised the
WIA of changes
needed to the
repeater list?**

Spotlight on SWLing

Robin L. Harwood VK7RH*

A New Year has started and I do wonder what will happen during the next 12 months on the Spectrum. Already several HF coastal Stations have deleted their CW service in line with the decision to phase out this mode within the Maritime Service. The Canadian Coastguard, who operates stations VAR and VCS, did drop Morse at the end of last September, and the Naval stations at Halifax (CFH) and Vancouver (CKN) have probably done likewise by now.

One reliable HF signal has disappeared altogether. This was ZLB/ZLW at Awarua on the South Island of NZ. Other HF coast stations throughout NZ closed down as well on 30 September. A network of VHF stations has been established to cover the Dominion and the Royal New Zealand Navy will be maintaining an HF watch until a private enterprise service is established. This will be located near Lake Taupo and reportedly close to the current Radio New Zealand International site, in six month's time. Awarua, which is near to Invercargill, was the main HF site. Mainly because of the excellent soil conductivity it was well heard throughout the world. Sadly, another part of our radio history has gone off the airwaves.

And while we are on historical sites, I was recently in Hobart, attending a WIA branch meeting. This branch now meets at the former site of VIH, Hobart Radio, on the Queens Domain, overlooking the picturesque Derwent River. VIH, I believe, commenced at this site around 1912-13 and continued till it closed in February 1992. The local WIA branch leases the site from the Hobart City Council and once again, radio signals have been emanating from the site. Sadly, the original antennas have been pulled down but the local branch has erected some more suitable to amateur radio needs. Listen out for VK7SB on the bands, particularly on the Tuesday evening Tasmanian Devil Net.

While listening on the 40 metre band early in November, I came across the "Voice of Nigeria" on 7255 kHz. It was in English with reasonable signals. When first heard, the signal was mixed in with a European broadcaster in Spanish but after this went off at 0630, the channel was clear. Signals only lasted for 20 minutes before rapidly fading out which, I presume, was due to sunrise in Lagos. In tropical areas there is no twilight as in temperate zones and this, the Gray-line effect as it is known, is very short. I sent off a report and now am wondering if they will reply. For I continued to monitor the

station daily and there was a bloodless coup on the 17th, which changed the way the programs were presented. It was interesting to hear history being made on shortwave.

Thanks to Mick Power VK4NGW, of Rochdale (Qld) who kindly wrote to confirm that I have been indeed hearing KCWW in Arizona. Apparently it is easily heard there near Brisbane and is regarded as a propagation marker for trans-Pacific signals. KCWW is not the only one on that frequency but is very dominant because of its 50 kW sender which comes over well on this relatively free channel here. And while I think about it, I note that 2RPH has moved from 1539 to 1224 kHz, permitting us to hear that Californian station 1 kHz higher. It is apparently right on the Pacific coast at Azle and although rated at 5 kW, propagates well across the vast ocean.

Jim VK2BGG, in Wauchope also writes

to inform me that he remembers hearing American stations around 1500 kHz in the forties. One station in particular stood out — Radio KGEI with Willis Conover and Jazz. This station, Jim, is still on-air on 9615 kHz but signs off earlier at 0500Z. It is now a religious station and broadcasts exclusively to Latin America in Spanish. Willis Conover is still heard with "Music USA" over the VOA at rare times and I have a feeling that they may be replaying tapes of past programming. I too can recollect hearing him over the VOA, when I started out listening in the mid fifties. He must be an old man now.

Well, that is all for now. If you have any comments or news, please feel free to send them to the addresses below. Until next time the very best of monitoring and 73 — Robin VK7RH.

*52 Connaught Crescent West Launceston TAS 7250
VK7RH @ VK7BBS

Education Notes

Brenda M Edmonds VK3KT*

I would like to begin by wishing all readers a happy and prosperous New Year.

Although most of us have learnt from experience not to expect a sudden increase in health, wealth or happiness simply because the calendar has flipped over to another year, many of us still find the start of a new year an appropriate time to evaluate both past performance and future plans.

For administrative and financial purposes, the WIA is structured on a calendar year basis rather than the traditional financial year of July to June, so it will soon be time to think of Annual Reports.

Many groups and clubs will be busy planning activities for 1994, and deciding whether or not to run classes this year. From comments I have heard, there seems to be a very wide range of opinions on the place of classes in the clubs. Some see the classes and examinations as their major income earner for the year, others provide the service at little or no cost to the students. I doubt if anyone has collected any data on either the success rates of the students or the continuing club or WIA memberships of students according to the cost of the courses. It would be an interesting topic to examine. I realise, of course, that there are very many other factors involved besides the cost.

What is a "successful class"? Is it the number of passes, the percentage, the number of new recruits to club activities, the fellowship developed within the

group? From some reports I have received, there is developing an awareness that some classes are consistently "good", while others have a lower reputation. When the numbers of students in an area each year is small, there is little chance of the "poor" classes being taken over by the "good" as would happen if market competition ruled. So it is up to the clubs and individuals to ensure that the classes run are the best possible.

Perhaps this is another area where sharing of information and ideas would benefit both students and lecturers. We do not have a convenient forum where lecturers can meet and share ideas as schoolteachers would at a subject conference day, but I understand that some areas have tried bringing a number of clubs together for discussions of both classes and examinations.

If there are lecturers who would like to offer their ideas, or recent students who have constructive suggestions for classes, I would be very pleased to receive them, and perhaps collate them for publication in this magazine. There must be many lecturers who feel a bit isolated and would appreciate the support of knowing that others have used a similar approach. There may even be amateurs who would volunteer to assist with classes if they felt there was some support available.

To close, I offer you two New Year Resolutions to adopt and keep -

1. to introduce at least one new person to amateur radio this year
2. to recruit one new member of the WIA this year.

My best wishes to you all for 1994.

*WIA Federal Education Co-ordinator
PO Box 445 Blackburn VIC 3130 at

HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for the five bands from 14 to 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μ V (dBu) at the MUF, the fourth column lists the "frequency of optimum travel" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μ V in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μ V at the receiver's input and the S-meter scale is 6 dB per S-point.

μ V in 50 ohms	S-points	dB(μ V)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4

0.78	S3	2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 39.5. The predicted sunspot numbers for February and March are 37.6 and 37.2 respectively.

VK EAST — MEDITERRANEAN

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	8.0	7	8.0	0	13	29		
2	8.5	7	8.5	-2	13	27		
3	9.6	-6	9.0	0	-3	12	-26	
4	17.7	3	13.6	2	3	2	-4	14
5	23.5	6	18.0	5	5	7	5	0
6	25.9	6	19.1	6	5	5	5	8
7	25.0	9	19.6	7	6	9	9	5
8	23.4	9	19.8	-4	7	10	9	5
9	22.3	11	19.4	4	10	12	9	5
10	22.3	13	18.0	10	15	14	10	3
11	21.2	16	17.0	19	20	16	10	1
12	20.2	20	16.1	27	23	16	9	-1
13	19.8	23	15.6	33	28	15	9	-1
14	18.8	24	15.0	35	27	15	7	-2
15	18.2	26	14.7	35	26	17	5	-1
16	17.1	27	13.4	35	24	14	0	-14
17	16.1	28	12.3	33	21	10	-1	-21
18	15.0	28	11.5	31	18	5	-11	-30
19	14.0	29	10.7	29	14	1	-18	-38
20	14.3	27	10.8	28	13	-1	-20	
21	13.6	25	10.0	23	8	-5	-28	
22	11.8	20	8.9	14	-1	-18		
23	11.6	14	8.0	10	-2	-18	37	
24	11.1	6	8.4	8	-5	-18	-39	

VK EAST — SOUTH PACIFIC

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	26.8	27	21.3	34	36	33	29	22
2	26.2	27	22.1	35	36	34	30	24
3	26.9	27	22.1	36	37	34	30	24
4	26.9	27	21.8	38	37	36	30	24
5	26.9	28	21.9	39	38	36	29	23
6	26.2	29	20.4	42	40	38	30	22
7	24.1	31	19.5	46	42	37	29	21
8	23.3	33	18.4	45	42	36	28	20
9	21.7	34	17.4	46	41	35	26	18
10	20.6	35	16.4	48	40	33	23	12
11	19.9	35	15.8	48	40	32	21	10
12	18.6	36	15.2	47	38	30	19	7
13	18.3	37	14.4	46	37	28	16	3
14	17.2	37	13.4	45	35	28	12	-1
15	16.2	38	12.5	44	32	22	7	-7
16	15.0	39	11.5	42	29	17	2	-14
17	14.0	40	10.7	40	26	13	-3	-21
18	14.3	39	10.8	39	28	14	-2	-19
19	14.6	34	12.5	38	30	21	8	5
20	19.9	40	12.2	37	33	29	18	6
21	22.5	29	17.4	37	35	31	24	16
22	23.4	29	18.4	35	34	31	25	17
23	24.0	28	18.2	34	34	31	26	18
24	25.0	27	20.5	34	35	32	27	20

VK EAST — AFRICA

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	11.1	2	8.8	4	-4	-18	-34	-41
2	10.5	-6	8.1	1	-6	-17	-35	-42
3	14.3	1	10.8	0	1	-3	-14	-27
4	21.0	9	16.3	-3	6	5	0	0
5	22.7	7	16.8	-8	4	7	8	1
6	22.6	6	18.6	-10	3	8	8	1
7	22.3	6	18.2	-10	3	6	5	0
8	22.0	6	17.8	-9	6	5	0	0
9	22.0	7	17.8	-4	6	7	4	-1
10	20.3	9	16.4	1	8	9	4	-2
11	18.3	11	15.5	7	11	9	3	-4
12	18.2	14	14.5	14	10	2	-6	-9
13	17.5	18	13.9	20	17	10	0	-12
14	16.8	23	13.3	27	20	11	-1	-15
15	16.2	25	13.1	30	20	10	-4	-20
16	15.5	27	12.0	30	19	7	-8	-26
17	14.6	28	11.3	30	17	4	-13	-32
18	13.9	29	10.8	28	14	0	-18	-38
19	13.4	30	10.2	27	12	-2	-21	-40
20	14.0	29	10.5	29	14	1	-17	-37
21	16.1	26	12.7	30	20	10	-4	-20
22	18.9	23	12.3	28	17	8	-4	-20
23	14.4	19	11.1	19	11	2	-12	-38
24	14.1	12	10.8	12	8	-3	-17	-35

VK EAST — EUROPE

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	9.4	-4	7.4	0	-11	-26	-	-
2	8.6	-13	6.7	0	-12	-27	-	-
3	8.4	-17	6.8	-1	-11	-25	-	-
4	9.7	-13	7.5	0	-7	-18	-36	-
5	12.6	-4	10.0	0	-1	-8	-30	-36
6	16.1	2	12.8	-1	2	-8	-46	-19
7	18.9	5	15.3	-1	5	-4	-41	-9
8	21.1	8	17.0	1	8	-3	-	-
9	22.6	11	18.3	8	14	13	8	1
10	22.1	17	17.8	20	21	18	12	4
11	21.0	21	16.8	28	25	20	12	3
12	20.0	23	16.0	33	27	20	11	0
13	19.5	25	15.5	36	28	21	10	-1
14	18.9	23	15.0	35	25	18	4	-10
15	18.9	24	13.4	32	20	9	-7	-24
16	14.4	26	11.8	27	11	-3	-28	-
17	12.5	27	9.9	20	1	-16	-	-
18	10.9	29	8.6	13	-10	-32	-	-
19	9.9	29	7.8	7	-18	-	-	-
20	9.4	29	7.3	3	-25	-	-	-
21	9.2	24	7.1	1	-28	-	-	-
22	9.1	18	7.0	1	-28	-	-	-
23	15.6	8	7.4	2	-15	-34	-	-
24	9.8	2	7.8	2	-11	-27	-	-

VK SOUTH — AFRICA

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	14.2	13	10.3	13	7	-1	14	30
2	14.7	9	10.8	7	6	-4	-13	29
3	16.7	9	13.2	7	8	-4	-4	-13
4	16.7	9	13.2	7	8	-4	-4	-13
5	19.6	7	14.0	1	7	6	1	-8
6	18.7	7	14.0	0	6	6	1	-8
7	18.6	6	14.0	0	6	6	1	-8
8	18.6	7	13.9	0	6	6	1	-8
9	18.7	7	13.9	1	7	6	1	-8
10	18.1	8	13.5	4	9	7	1	-7
11	16.3	10	12.8	8	10	7	0	-10
12	17.2	12	12.1	11	11	6	0	-14
13	16.2	14	11.3	15	11	5	-6	-20
14	15.2	17	10.8	18	12	3	-10	-28
15	14.6	20	10.2	22	16	1	-18	-34
16	13.9	25	9.6	25	12	-1	-18	-39
17	13.4	27	9.3	25	10	-4	-24	-
18	12.8	29	9.0	24	8	-7	-28	-
19	12.8	30	8.4	24	7	-9	-34	-
20	12.8	29	9.1	24	8	-7	-29	-
21	13.0	26	9.0	23	8	-8	-28	-
22	12.7	22	8.8	19	5	-5	-28	-
23	12.7	16	8.6	15	6	-5	-27	-
24	13.5	15	9.5	15	8	-4	-21	-39

VK EAST — ASIA

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	24.4	14	19.3	18	20	18	13	7
2	24.6	12	18.9	14	19	17	12	5
3	21.7	12	17.3	10	19	14	13	6
4	20.0	13	18.7	15	20	19	14	8
5	20.8	15	18.4	17	21	20	16	8
6	27.1	16	21.3	20	24	23	19	13
7	24.4	17	21.2	25	24	24	20	18
8	24.9	15	20.8	31	29	25	19	11
9	23.8	21	19.2	37	32	27	18	9
10	22.6	22	18.2	39	32	25	16	5
11	21.7	23	17.2	40	32	24	13	2
12	21.3	23	16.9	40	32	23	12	0
13	20.7	24	16.3	41	31	22	10	-2
14	19.8	23	15.3	39	28	18	5	-9
15	18.5	22	14.2	37	24	13	0	-12
16	17.2	23	13.1	34	20	7	10	-29
17	15.7	25	12.1	30	15	0	-20	-
18	13.8	25	10.8	23	3	15	-	-
19	12.4	27	8.4	7	-22	-	-	-
20	10.2	27	7.9	1	-30	-	-	-
21	14.0	20	10.8	19	3	13	-36	-
22	20.5	16	15.9	25	21	14	4	-8
23	23.2	16	16.5	27	23	19	13	1
24	23.7	15	16.2	18	21	18	13	5

VK EAST — EUROPE (Long Path)

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1	9.5	-9	7.2	0	-7	-18	-35	-
2	9.9	-4	7.5	2	-6	-18	-37	-
3	10.1	0	7.7	3	-6	-19	-38	-
4	9.7	3	7.5	3	-9	-	-	-
5	8.8	8	8.9	1	-15	-33	-	-
6	8.6	13	8.8	1	-19	-	-	-
7	10.0	23	7.9	9	-11	-31	-	-
8	9	130	26	8	21	6	-69	-
9	12.9	24	9.8	21	8	-3	-21	-
10	12.8	15	9.7	14	8	-4	-19	-36
11	15.9	10	12.5	0	9	4	4	19
12	15.5	3	12.5	0	14	1	4	-15
13	14.6	-2	12.0	3	1	0	7	-18
14	14.1	-7	11.0	-6	0	-2	9	-17
15	13.4	11	10.3	8	2	3	-10	-25
16	12.8	14	9.7	-8	-2	4	-11	-31
17	12.6	15	9.4	-4	-2	4	11	-31
18	13.2	13	9.8	-9	-2	3	-10	-19
19	14.9	-7	11.7	-9	-2	-3	-8	17
20	12.9	-11	10.0	-6	-2	5	12	23
21	13.3	14	8.7	3	-2	7	-18	-32
22	10.3	-1	8.7	0	-3	-10	-23	-36
23	9.7	-16	7.4	0	-6	13	-26	-
24	9.5	13	7.2	0	-6	-16	-37	-

VK SOUTH — EUROPE										VK WEST — AFRICA										VK WEST — MEDITERRANEAN										
UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5		UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5		UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5		
1	10.0	1	7.8	2	19	24	...	...		1	13.1	16	9.8	16	12	7	-26	-30		1	8.3	5	6.3	-6	-31	...	...	...
2	10.1	1	7.8	2	19	24	...	...		2	13.1	16	9.8	16	12	7	-26	-30		2	7.8	2	6.0	-8	-32	...	...	...
3	8.9	14	7.0	0	-9	-22	...	...		3	15.6	11	12.3	11	9	2	-20	-23		3	10.8	1	8.0	0	-30	0	-23	...	...
4	10.4	-11	7.9	0	-6	-14	-30	...		4	19.1	11	14.6	9	11	8	1	-6		4	16.5	5	12.8	4	4	0	0	11	-23	
5	13.7	-3	11.0	-2	-6	-5	-15	-26		5	20.2	9	14.9	6	10	9	2	-6		5	21.8	7	16.2	7	16	12	7	4	-2	
6	17.7	-3	14.2	-2	-6	-5	-15	-26		6	20.2	9	14.9	6	10	9	2	-6		6	20.7	7	16.2	-1	7	8	5	1	-1	
7	20.7	3	18.5	-7	3	5	-2	-6		7	20.1	8	16.4	3	8	7	2	-6		7	22.0	7	17.5	-2	7	8	5	1	-1	
8	20.6	3	18.5	-7	3	5	-2	-6		8	20.0	8	16.3	3	8	7	1	-6		8	21.9	8	17.7	-2	7	8	5	1	-1	
9	20.6	8	16.7	-3	6	8	5	-6		9	19.8	8	16.1	4	9	7	1	-7		9	21.5	8	17.6	0	8	8	5	-1		
10	20.0	10	16.1	3	10	9	5	-1		10	19.6	9	15.9	6	10	7	1	-7		10	21.1	9	17.1	3	9	9	5	-2		
11	18.1	14	16.2	12	14	11	5	-4		11	18.0	10	15.7	9	11	8	0	-7		11	20.4	11	16.9	8	12	10	4	-3		
12	18.1	16	14.5	22	19	13	3	-8		12	18.1	12	14.6	13	12	9	-1	-12		12	18.5	15	16.7	7	16	12	7	4	-2	
13	17.1	23	13.6	28	21	12	0	-13		13	17.2	15	13.7	18	14	7	-4	-17		13	18.5	20	14.6	26	20	13	2	-10		
14	16.3	26	12.9	31	21	11	-3	-19		14	16.2	19	12.9	21	14	5	-7	-23		14	17.8	23	14.0	31	21	12	0	-15		
15	15.7	27	12.4	31	20	8	-6	-24		15	15.4	23	12.2	26	15	4	-11	-29		15	17.0	24	13.5	31	21	11	3	-19		
16	15.0	27	12.4	31	20	8	-6	-24		16	14.6	26	10.7	17	14	2	-16	-35		16	16.4	25	13.2	32	20	18	0	-10		
17	13.4	27	10.5	24	7	-9	-31	...		17	14.2	27	11.4	27	13	1	-20	...		17	15.8	26	12.8	31	18	6	-10	-28		
18	11.7	28	9.1	17	-3	-23	...	...		18	13.5	29	10.5	26	10	-8	-25	...		18	14.9	26	11.7	29	15	1	-17	-37		
19	10.6	20	8.2	12	-12	-35	...	...		19	12.9	30	9.9	23	8	-8	-30	...		19	14.1	27	10.9	27	11	-3	-24	...		
20	10.0	28	7.7	8	-18	...	...	...		20	12.4	30	9.5	23	5	-12	-35	...		20	13.2	28	10.2	24	7	-9	-31	...		
21	9.7	28	7.4	6	-21	...	...	...		21	12.2	30	9.2	22	4	-13	-37	...		21	12.6	27	9.6	21	2	-16	...	...
22	8.6	20	7.4	4	-19	...	...	...		22	12.8	30	8.8	24	7	-9	-31	...		22	12.4	27	9.3	19	-1	-21	...	...
23	8.6	13	7.5	3	-18	-37	...	...		23	12.9	27	9.9	29	7	-7	-29	...		23	11.2	26	8.6	18	-8	-29	...	...
24	10.4	8	6	0	-26	...	...	...		24	12.5	22	9.5	18	4	-10	-31	...		24	10.4	18	7.9	5	-5	-37	...	...

VK SOUTH — MEDITERRANEAN										VK WEST — ASIA										VK WEST — SOUTH PACIFIC									
UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5		UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5		UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5	
1	9.0	-4	8.9	0	-1	-15	-33	...		1	22.6	15	17.9	18	20	17	11	2		1	21.3	13	16.9	12	15	13	7	-1	
2	9.1	-4	8.9	0	-1	-15	-33	...		2	13.1	13	15.9	18	20	17	11	2		2	21.3	13	16.9	12	15	13	7	-1	
3	9.3	-4	8.9	0	-1	-15	-33	...		3	23.9	13	18.3	18	19	17	12	4		3	21.7	13	16.1	13	19	14	8	0	
4	18.4	4	14.2	-2	4	3	7	-12		4	24.5	13	18.6	14	19	17	12	5		4	21.7	14	17.6	14	17	14	8	0	
5	19.6	5	17.9	-8	5	6	0	-8		5	25.2	13	19.1	15	20	18	14	6		5	21.6	14	17.7	17	16	15	8	0	
6	21.8	6	17.9	-8	5	6	0	-8		6	26.0	14	20.6	17	21	19	14	7		6	21.6	14	17.7	17	16	15	8	0	
7	21.8	6	17.9	-8	5	6	0	-8		7	26.2	14	20.7	20	24	22	16	12		7	21.3	18	17.3	26	23	18	10	0	
8	21.6	6	17.4	7	4	6	4	-1		8	25.5	17	20.9	24	24	22	16	12		8	21.0	20	17.1	31	25	20	10	0	
9	21.9	12	17.9	4	9	8	1	-2		9	24.7	19	20.1	31	29	25	19	9		9	20.3	25	18.3	37	28	21	11	-4	
10	20.0	10	16.1	3	10	9	5	-1		10	23.6	22	18.7	39	34	27	19	9		10	19.2	25	13.4	37	28	18	6	-7	
11	18.8	12	18.6	10	13	10	6	-4		11	22.6	23	18.2	41	33	26	16	5		11	18.2	26	14.5	36	28	18	3	-12	
12	15.5	16	14.8	19	17	12	3	-7		12	21.4	23	17.2	41	32	24	13	1		12	17.4	27	13.8	36	25	14	0	-16	
13	15.5	16	14.8	19	17	12	3	-7		13	20.3	24	16.9	40	31	23	12	0		13	16.4	27	13.8	36	25	14	0	-16	
14	16.7	24	13.2	30	20	11	-2	-18		14	20.0	24	15.9	40	30	20	8	-6		14	15.9	28	13.6	34	21	4	-3	-26	
15	16.0	26	12.7	31	21	19	9	-6		15	19.4	24	15.2	39	29	18	5	-9		15	15.2	29	11.9	33	19	8	-12	-31	
16	14.6	26	12.7	31	21	19	9	-6		16	18.5	23	14.0	36	24	12	-11	-31		16	14.5	30	11.2	31	18	2	-17	-38	
17	14.6	26	12.7	31	21	19	9	-6		17	17.9	23	13.0	36	24	12	-11	-31		17	13.2	32	10.3	33	15	1	-4	-29	
18	14.0	28	10.8	28	13	-1	-20	...		18	15.8	23	12.1	30	13	-1	-22	...		18	13.2	31	10.0	27	10	-5	-28	...	
19	13.4	29	10.2	26	10	-4	-25	...		19	13.7	24	9.5	32	1	-18	...			19	13.0	25	9.9	22	7	-7	-29	...	
20	13.1	29	8.8	16	-10	-28	...	...		20	13.0	24	9.5	32	1	-18	...			20	13.0	25	9.9	22	7	-7	-29	...	
21	13.7	28	10.3	26	12	-2	-21	...		21	10.2	26	7.9	2	-35	...				21	18.5	17	12.2	18	12	3	-10	-26	
22	13.8	22	10.2	21	7	-6	-26	...		22	13.9	21	10.8	20	2	-16	...			22	18.0	14	13.5	16	14	9	-1	-13	
23	13.1	18	9.8	15	3	-9	-29	...		23	18.6	17	15.1	25	20	14	3	-8		23	19.3	14	15.3	15	16	12	4	-5	
24	11.4	10	8.6	7	-5	-19	...	...		24	21.9	16	17.2	21	21	17	10	1		24	20.9	13	16.3	15	16	13	6	-3	

VK SOUTH — SOUTH PACIFIC										VK WEST — EUROPE										VK WEST — USA/CARIBBEAN									
UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5		UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5		UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5	
1	17.7	16	14.3	19	18	8	-4	-18		1	10.5	11	8.1	4	-12	-30	...			1	18.2	3	13.7	-5	3	3	1	-9	
2	17.8	16	14.7	20	18	9	-3	-17		2	9.5	1	7.4	0	-19	-34	...			2	18.0	3	12.1	-1	4	1	6	-18	
3	17.8	17	14.7	20	18	9	-3	-17		3	11.0	4	8.5	0	-15	-31	...			3	14.2	2	10.7	2	2	1	-1	-12	-25
4	17.8	18	14.6	22	17	9	-3	-18		4	11.0	4	8.5	0	-15	-31	...			4	13.0	9	9.7	5					

HAMADS

TRADE ADS

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kuma NSW 2533 (no enquiries at office please)

14 Boonyo Ave Kuma) Agencies at Geoff Wood Electronics, Sydney Webb Electronics, Albury Assoc TV Service, Hobart Truscolts Electronic World, Melbourne

● **WEATHER FAX programs for IBM XT/ATs ***** "RADFAX2" \$35-00, is a high resolution short-wave weatherfax, morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which) Needs SSB HF radio and RADFAX decoder *** "SATFAX" \$45-00 is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver *** "MAXISAT" \$75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3-00 postage. ONLY from M Deahunt, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

FOR SALE NSW

● **KENWOOD TS-520S** with manual, matching VFO-520 remote VFO, external SP-520 spkr \$600. **YAESU FT-101Z** with manual \$650. **YAESU FL-2100B** linear amp with manual \$600. **YAESU FRG-7** comm rcvr with manual \$250; al in ex cond. Alan VK2PT QTHR (049) 43 1308.

● **HAM RADIO** parts suitable for experiment or building ham vintage parts included. Jack VK2NQ QTHR (02) 746 9647

● **PHILIPS UHF 828** 10 channel W1 band \$50. D Thompson VK2BDT (048) 21 5036.

● **ANTIQUE** radio valves, 1V 2A5(3), 6A6, 2A4, 25, 30, 32, 34, 36, 37, 38, 47, 56, 58, 80, 227, E406, E415, KK2(2), KL4, NY224, PM59, PM243, UF109A, UX250, UX281, UY235, UY236, UY510B, UZ133, VT27. No guarantee on condition. Offers in part or whole. A Hinkler VK4AO QTHR (066) 46 6587

● **UNIDEN HR2510** 25W/10m mobile in original packing with service manual, as new \$325; **SCANNER PRO 2022** 210 channel desktop/mobile, mains + 12V, in original packing, as new, cost \$550, sell \$390. Can ship interstate if necessary. Brad VK2KQH day/evening (02) 906 5855, AH (018) 64 0377

● **KWM2** transceiver good clean fully operational unit with new 6146s \$850. Charles VK2ZR (046) 77 1220.

FOR SALE VIC

● **KENWOOD TS811A** excellent condition c/w handbook still in original box, s/n 60500033 \$980.00. Fred VK3AFR QTHR (053) 45 3633.

● **KENWOOD TS830S** xcvr plus remote VFO, recent full check, new finals, exc cond. \$1050.00; **DESK mic MC50** \$90, **WELZ 15m swt/pwr meter 1.8-150MHz/200W** \$115; **BELL LOW pass filter (2000W pep)** \$60, **POWER supply regulated 13.8v-rated 10A (15A peak)** \$175; **TOYO T-200 dummy load 200W, to 500 MHz** \$85. Ken VK3KE QTHR (03) 589 2616.

● **YAESU FT7 HF** pristine condition instruction manual original in every way \$450; **YAESU FT26 2m HT** perfect condition instruction manual charger protective case belt clip \$325. John VK3CJA (059) 64 7520.

● **VFO FV-101DM** for FT101ZD new \$100. Arnold VK3AGW (03) 763 0758.

FOR SALE QLD

● **YAESU FT7** tcvr works well manual \$275. Bill VK4BIL (07) 263 2630.

● **ICOM IC-2A2m** handheld with BP5 + BP3 battery pack, in-car adaptor, 240volt battery charging console, 12 volt operated linear \$350; **YAESU FTD560** xcvr good goer \$200. Herb VK4KM (071) 64 2202

● **PACCOM TINY-Z TNC**, fitted with MK2 upgrade sprom, \$200, also UNIDEN HR2510 10 metre monobander, 25 watt all-mode xcvr \$240; all exc condition, (orig owner) suit new buyer. Frank VK4DFM QTHR (071) 29 4311.

● **VALVES** transmitting, receiving, renovators, collectors, some unused, tested. Octals, early and later types, rectifiers, sockets. Send SASE A4 envelope for latest increased list. Ted VK4YG PO Box 245, Ravenshoe, QLD 4872 (070) 97 6387

● **TS520S** in excellent condition with DC-DC converter \$500; **DG5 digital readout** \$150; **SP250 speaker** unit \$50; **VFO520 external VFO** \$75, **MC60 microphone** \$30; **CODAN HF** Marine transceiver model 6180 very good condition complete with antenna tuning unit \$650. Bernie VK4IB (071) 25 1930.

FOR SALE SA

● **YAESU FT707** tcvr s/n 2C210330 excellent condition in original carton with manual \$650; **YAESU FRG-8800** com receiver s/n 8C210078 as new in original carton \$850, 5 ELEMENT duo-band beam for 10/15 metres \$125. Dennis VK5BKD (08) 376 1008.

FOR SALE TAS

● **KENWOOD TS120S** transceiver + AT120 tuner \$600; **KENWOOD** external VFO type VFO \$50; **HYGAIN TH3** junior tri bander good condition \$250. John VK7WJ (004) 23 1128.

WANTED NSW

● **YAESU FV400S VFO**, **FT560** ext speaker, **FV200 VFO**, **YAESU FT101E** work shop manual. Michael VK2VFT QTHR (066) 47 3271

● **KENWOOD** desk microphone type **MC-85** or **MC-80** **Malcolm VK2BMS QTHR** (02) 257 4583 BH or (02) 958 1114 AH

● **VALVES** type 211, 2A3, 50, KT88, OLD valve audio equipment in any condition. Bob VK2ZHS QTHR (02) 567 5390.

WANTED VIC

● **R390A/URR RX RF4-8/8-16 T204/T205** also RF coil slugs IF T501-3 slugs. Arnold VK3AGW 13 Sandgate Blvd, Ferntree Gully Vic 3156, (03) 763 0758

WANTED WA

● **VZ200 DATA CASSETTE** recorder or circuit diagram with component values. Stanley VK6LV QTHR (098) 41 5040

● **YAESU** Mobile Antenna Resonator **RLS-14** (14 MHz) Bill VK6LT QTHR (09) 457 1080.

MISCELLANEOUS

● **PLEASE** send your donation of QSL cards, old or new, to the Hon Curator of WIA QSL Collection, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350. Let us save something for the future

ar

UPDATE

1994 Membership Fees

The 1994 Membership Fees for the VK5 and VK7 Divisions of the WIA were incorrectly listed in the WIA Divisions directory published on page 3 of the December 1993 issue of *Amateur Radio* magazine

The 1994 fees for those Divisions are as follows:

VK5	
(F)	\$70.00
(G) (S)	\$56.00
(X)	\$42.00
VK7	
(F)	\$69.00
(G) (S)	\$55.65
(X)	\$40.00

Make sure you correct your December *Amateur Radio* now!

■

Technical Correspondence

Reluctant Oscillator

The EDK Multi 7 is a 23 channel crystal controlled rig which I have been using for years, in the car at one time, but now as a base station unit.

When a friend of mine was looking for equipment to get on the air I had no qualms in recommending one when he heard of one advertised at a modest price. Limited by the use of crystals certainly, but more versatile rigs would come later.

My friend's Multi 7 gave him good service, too, with the frequencies it carried, but when he obtained his full call and decided to give packet a go, the problems began. He ordered a set of crystals for the local BBS and duly collected them. The "fun" was about to start. There were problems with the modem arrangement too, but that is another story.

When the crystal supplier heard about the problems he invited my friend back with his transceiver as he wanted to verify the quality of the crystals. After checking the crystals as being OK it was eventually possible to activate the Multi 7 to receive

some packet signals. However, while the transmitter did work, the output was down on that compared with that person's own Multi 7, and he declared the unit very sick and in need of a "doctor".

Once home again my friend's unit worked briefly, but would not function at next switch-on. In fact, from then on it would work perhaps once in ten or more tries.

Feeling partly responsible, as the recommender of the unit in the first place, I contacted the previous owner, who said he had never modified it in anyway, but was aware that it did not like operating below 146 MHz. He also observed that there may have been a number of versions to satisfy world markets. In fact, my own unit's dial carried numbers only, while this unit had a mixture of letters and numbers. The previous owner said he understood that this particular set was designed for 146-148 MHz operation. Our local BBS is on 144.85 MHz.

At home I studied my own unit's circuit diagram and found that the receiver used an overtone oscillator and that the

handbook quoted a frequency range of 144-146 MHz.

On my next visit, my friend and I opened up his unit and found that the oscillator tank circuit coil slug was fully in. Now, to make an already long story a bit shorter, we found that by adding some 22 pF of capacitance across this coil worked wonders.

A permanent fix required getting at the under side of the receiver board (not the board carrying all the crystals) and soldering in the small capacitor.

No more problems!

Hope these findings may be of some use to others.

Murry Burford VK5ZQ

*261 Belair Road Torrens Park SA 5062

AF

**Help stamp out
stolen equipment.
Always include the
serial number of
your equipment in
your Hamad.**

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

*Eight lines per issue free to all WIA members, ninth line for name and address

Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

*Copy typed or in block letters to PO Box 300,

Cuffield South, Vic 3162, by the deadline as indicated on page 1 of each issue.

*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

Conditions for commercial advertising are as follows: \$25.00 for four lines, plus \$2.35 per line (or part thereof) Minimum charge — \$25.00 pre-payable.

DATE:

Not for publication:

☐ Miscellaneous

☐ For Sale

☐ Wanted

Name: Call Sign: Address:

TRADE PRACTICES ACT

It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with strictly.

VICTORIAN CONSUMER AFFAIRS ACT

All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

TYPESETTING AND PRINTING:

Industrial Printing, 122 Dover Street, Richmond, 3121. Telephone: 428 2958

MAIL DISTRIBUTION:

R L Polk & Co Pty Ltd, 96 Herbert St, Northcote, Vic. 3070. Tel: (03) 482 2255

CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

BACK ISSUES

Available only until stocks are exhausted. \$4.00 to members, which includes postage within Australia.

PHOTOSTAT COPIES

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus \$2.00 for each additional issue in which the article appears).

The opinions expressed in this publication do not necessarily reflect the official view of the WIA; and the WIA cannot be held responsible for incorrect information published.

ADVERTISERS INDEX

Amateur Radio Action	10
Coman Antennas	11
Daycom	5
Dick Smith Electronics	27, 28, 29
Dr Hi Fi — Ham Log	17
Electronic Disposals	33
ICOM	OBC
Kenwood Electronics	IFC
WIA Divisional Bookshops	IBC
WIA NSW Division	35
ZRV Electronics	21

Trade Hamads

M Delahunty	54
RJ & US Imports	54

HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary
Wireless Institute of Australia
PO Box 300
Caulfield South, Vic 3162

I wish to obtain further information about the WIA.

Mr, Mrs, Miss, Ms:.....

Call Sign (if applicable):.....

Address:.....

State and Postcode:.....

VK QSL Bureaux

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

VK1	GPO Box 600 Canberra ACT 2601
VK2	PO Box 73 Teralba NSW 2284
VK3	40G Victory Boulevard, Ashburton VIC 3147
VK4	GPO Box 638 Brisbane Qld 4001
VK5	PO Box 10092 Gouger Street Adelaide SA 5000
VK6	GPO Box F319 Perth WA 6001
VK7	GPO Box 371D Hobart Tas 7001
VK8	C/o H G Andersson VK8HA Box 619 Humpty Doo NT 0836
VK9/VK0	C/o Neil Penfold VK6NE 2 Moss Court Kingsley WA 6026

A Divisional Bookshops

The following items are available from your Division's Bookshop
(see the WIA Division Directory on page 3 for the address of your Division)

	Ref	List Price		Ref	List Price
ANTENNAS			OPERATING		
Ant. Compendium Vol 2 Software 5.25" IBM Disk	BR253	\$22.00	Amateur Radio Awards Book - RSGB	BR297	\$30.00
Ant. Compendium Vol 3 1st Ed. 1982	BR455	\$37.00	Antenna Techniques -- G3WV -- RSGB	BR303	\$30.00
Antenna Compendium Vol 2 -- RSGB	BR252	\$32.00	Antenna Companion -- How to Build Your First 100	BR245	\$18.00
Antenna Impedance Matching -- ARRL	BR257	\$52.00	DXCC Country Listing -- ARRL	BR286	\$5.00
Antenna Note Book W1FB -- ARRL	BR179	\$26.00	FCC Rule Book -- A Guide to the FCC Regulations	BR279	\$24.00
Antenna Pattern Worksheets Part of 10	BR262	\$3.00	Locator Map of Europe -- RSGB	BR268	\$4.00
Cubical Quad Antennas Handled -- 1983	BR441	\$37.50	Log Book -- ARRL -- 8" x 11" Wire Bound	BR202	\$9.00
Easy Log Antennas	MF-28	\$36.75	Low Band DXing -- John Denekers	BR109	\$20.00
G-ORP Antenna Handbook -- RSGB -- 1992 1st Edition	BR452	\$22.50	Operating Manual -- ARRL -- 4th Edition	BR182	\$48.00
HF Antenna Collection -- RSGB	BR391	\$44.00	Operating Manual -- RSGB	BR209	\$31.00
HF Antennas for all Locations -- Mosch -- 2nd Edition	BR188	\$45.00	Paraport to World Band Radio	BR248	\$45.00
HF Antennas for all Locations -- RSGB -- 1993	BR458	\$45.00	Practical Map of the World -- RSGB (Amateur)	BR257	\$18.00
Antenna Compendium Vol 1 -- ARRL	BR163	\$26.00	RTTY/AMTOR Companion ARRL 1st Ed 1983	BR245	\$21.00
Novice Antenna Notebook -- DeWitt W1FB -- ARRL	BR142	\$20.00	The Complete Ditty -- W9HNI	BR194	\$32.00
Physical Design of Yagi -- 3.5" IBM Disk	RF0385	\$25.00	Transmitter Hunting	BR223	\$43.00
Physical Design of Yagi 3.5" IBM Disk Excel Format	RF0386	\$25.00	World Grid Locator Atlas -- (Maidenhead) Location -- ARRL	BR197	\$10.00
Physical Design of Yagi Antennas -- The Book	RF0384	\$26.00			
Practical Wire Antennas -- RSGB	RF038	\$32.00			
Reflections Transmission Lines and Antennas -- 5.25" IBM	RF044A	\$22.00	PACKET RADIO		
Reflections Transmission Lines and Antennas -- ARRL	RF044	\$22.00	AX.25 Link Layer Protocol -- ARRL	BR178	\$21.00
The Antenna Handbook -- ARRL 1991 edition	BR370	\$52.00	Gateway to Packet Radio 2nd edition -- ARRL	BR189	\$52.00
Transmission Line Transformation -- ARRL	RF029	\$52.00	Packet Computer Networking Conference 1-4 1982/5	BR278	\$25.00
Vertical Antenna Handbook -- Lee -- 1990	RF028	\$22.00	Packet Computer Networking Conference No 5 1986 -- ARRL	BR167	\$20.00
Wire Antenna Design -- ARRL	BR184	\$40.00	Packet Computer Networking Conference No 6 1987 -- ARRL	BR168	\$20.00
			Packet Computer Networking Conference No 7 1988 -- ARRL	BR184	\$25.00
			Packet Computer Networking Conference No 8 1989 -- ARRL	BR285	\$26.00
			Packet Computer Networking Conference No 9 1990 -- ARRL	BR380	\$20.00
			Packet Radio Companion ARRL 1993 1st Edition	BR286	\$22.00
			Packet Radio Computer Conference 1992 -- ARRL	BR440	\$38.00
			Packet Radio Primer -- G3VTC -- RSGB	BR241	\$28.00
CALL BOOKS			SATELLITES		
Radio Call Book International 1994	BR339	\$55.55	Satellite AMSAT 5th Space Symposium -- ARRL	BR182	\$17.50
Radio Call Book North America 1994	BR338	\$55.55	Satellite AMSAT 6th Space Symposium -- ARRL	BR196	\$17.50
RSGB Call Book 1993/4	BR485	\$38.00	Satellite AMSAT 3rd Space Symposium -- ARRL	BR445	\$25.00
			Satellite Anthology -- 1992 Edition -- ARRL	BR180	\$21.00
			Satellite Experiments Handbook	BR177	\$52.00
			Space Antennae -- ARRL	BR209	\$50.00
			Weather Satellite Handbook -- ARRL	BR324	\$52.00
			Weather Satellite Handbook Software 5.25" IBM Disk	BR326	\$22.00
FICTION			VHF/UHF/MICROWAVE		
CO Glow Ship -- ARRL	BR224	\$13.00	Microwave Conference 1993	BR469	\$33.00
Death Valley QTH -- ARRL	BR220	\$13.00	Microwave Handbook Vol 1 -- RSGB	BR318	\$28.00
DX Brings Danger -- ARRL	BR226	\$13.50	Microwave Handbook Vol 2 -- RSGB	BR327	\$27.00
Good Contact QSO -- ARRL	BR207	\$13.50	Microwave Handbook Vol 3 -- RSGB	BR417	\$37.00
Warder By QRM -- ARRL	BR221	\$13.50	Microwave Update Conference 1987 -- ARRL	BR174	\$19.50
SOS At Midnight -- ARRL	BR228	\$13.50	Microwave Update Conference 1988 -- ARRL	BR183	\$17.50
			Microwave Update Conference 1989 -- ARRL	BR321	\$24.50
			Microwave Update Conference 1991 -- ARRL	BR446	\$24.00
			Mid Atlantic VHF Con. October 1987 -- ARRL	BR175	\$18.50
			General Spectrum System Software -- ARRL	BR325	\$52.00
			UHF/Microwave Experiments Manual -- ARRL	BR326	\$22.00
			UHF/Microwave Experiments Software -- ARRL	BR327	\$22.00
			VHF First Central States Con. 1987 -- ARRL	BR172	\$19.50
			VHF 23rd Central States Con. 1989 -- ARRL	BR206	\$17.50
			VHF 24th Central States Con. 1990 -- ARRL	BR322	\$23.00
			VHF 25th Central States Conference 1991 -- ARRL	BR428	\$23.00
			VHF 26th Central States Conference 1992 -- ARRL	BR448	\$24.00
			VHF 27th Central States Conference -- ARRL	BR470	\$32.00
			VHF Conference -- ARRL -- 1st Edition -- 1982	BR463	\$21.00
			VHF West Coast Conference 1992	BR444	\$24.50
			VHF/UHF 19th Eastern Conference -- ARRL	BR467	\$37.00
			VHF/UHF Manual -- RSGB		
HANDBOOKS			WIA MEMBERS SERVICES		
ARRL Handbook -- 1993	BR369	\$46.00	Log Book Covers		\$16.00
Electronics Data Book -- ARRL	RF021	\$32.00	WIA Badge -- Diamond		\$4.00
Radio Communication Handbook -- RSGB	RF024	\$46.00	WIA Badge -- Diamond With Call Sign Space		\$4.00
Radio Theory For Amateur Operators -- Bernstein -- 2nd Ed	RF025	\$42.95	WIA Badge -- Traditional Red		\$4.00
Space Radio Handbook -- G4VHJ -- RSGB	RF029	\$47.00	WIA Badge -- Traditional Red		\$4.00
World Radio TV Handbook	RF050	\$40.00	WIA Car Bumper Stickers		\$0.50
			WIA Car Window Stickers		\$0.50
			WIA Tape -- Sounds of Amateur Radio		\$0.50
HISTORY			WIA PUBLICATIONS		
200 Years and Open 1936 -- ARRL	BR158	\$21.00	Australian Radio Amateur Call Book -- 1994		\$12.50
50 Years of the ARRL -- 1981	BR196	\$8.00	2nd Year Booklet		\$2.00
Spark to Space -- ARRL 75th Anniversary	BR310	\$26.00	WIA Log Book -- Horizontal or Vertical Format		\$5.00
			WIA Novice Study Guide		\$2.00
INTERFERENCE					
Interference Handbook -- Nelson	BR181	\$25.50			
Radio Frequency Interference -- ARRL -- 1982 Edition	BR186	\$40.00			
MISCELLANEOUS					
Amateur Radio For Beginners -- RSGB	BR382	\$12.50			
Design Note Book W1FB -- ARRL	BR357	\$26.40			
Farrell Confidential Frequency Listing	BR367	\$40.00			
HF Steps in Radio -- Doug DeWitt W1FB	BR385	\$26.00			
G-ORP Circuit Handbook -- G. Dobos -- RSGB	BR441	\$31.00			
Ham Radio Communications Circuit Files	MFJ27	\$24.95			
Plans For New Hams DeWitt -- ARRL	RF028	\$24.00			
Hams and Kinks 12th Edition -- ARRL	BR193	\$24.00			
I Love Amateur Radio Car Bumper Sticker -- RSGB	BR486	\$2.75			
Notes on the Air Car Bumper Sticker -- ARRL	BR487	\$2.75			
National Educational Workshop 1991 -- RSGB	BR354	\$24.00			
Novice Notes, The Book -- CST -- ARRL	RF028	\$16.00			
QRP Guides -- ARRL -- CST	RF023	\$32.00			
QRP Note Book -- DeWitt -- ARRL	BR179	\$26.00			
QRP Operating Companion -- ARRL -- 1982 1st Ed	RF019	\$16.00			
QRP Operating Manual -- ARRL -- 1992	RF016	\$16.00			
Radio Antennas -- RSGB	RF027	\$30.00			
Radio Buyers Source Book -- ARRL -- Volume 1	RF027	\$40.00			
Solid State Design -- DeWitt -- ARRL	BR171	\$32.00			
MORSE CODE					
Morse Code -- The Essential Language	BR223	\$16.00			
Morse Code for Radio Amateurs -- RSGB	BR242	\$16.00			
Morse Code Tapes Set 1: 5-10 WPM -- ARRL	BR331	\$18.50			
Morse Code Tapes Set 2: 10-15 WPM -- ARRL	BR332	\$18.50			
Morse Code Tapes Set 3: 15-22 WPM -- ARRL	BR333	\$18.50			
Morse Code Tapes Set 4: 13-14 WPM -- ARRL	BR334	\$18.50			
Morse Tapes 3.5" IBM Disk	BR187A	\$20.00			
Morse Tapes 5.25" IBM Disk	BR187	\$20.00			

Not all of the above items are available from all Divisions (and some is available from the Federal Office).

If the items are carried by your Division's Bookshop, but are not in stock, your order will be taken and filled as soon as possible.

Divisions may offer discounts to WIA members -- check before ordering. Postage and packing, if applicable, is extra.

All orders must be accompanied by a remittance.

The prices are correct as at the date of publication but, due to circumstances beyond the control of the WIA, may change without notice.



Ham heaven.

Some days Duncan thinks that he must have died and gone to heaven. Whichever way he turns he is surrounded by the finest ham radios around. What's a guy to do? He plays with them all day. And if that wasn't good enough, he gets paid for it as well.

Duncan Baxter...well VK 3LZ actually, let's call him by his 'real' name, is our resident ham radio expert. No one knows the Icom range better than VK 3LZ. He's been with us virtually from the start, some ten years in fact.

Now, if you'd like to find out about the latest in base stations, or virtually anything else to do with amateur radio operation, why not give VK 3LZ a call. Or you could simply drop in and see him at ham heaven ... err ... our head office that is.

Icom Australia 7 Duke Street Windsor Victoria 3181

Free Call: (008) 338 915 Ph: (03) 529 7582 Fax: (03) 529 8485 A.C.N. 006 092 575